# The Builder.

VOL. XXXI.—No. 1570.

## *The Real, the Conventional, and the Ideal.*

IT rarely happens that a man who, to the possession of an observant eye, and of a taste for natural beauty, adds even the faintest spark of the artist's fire, can take a country stroll without having his imagination impressed by graceful forms which he will desire to perpetuate or to reproduce. Painter, sculptor, or architect, in whatever province of art his sympathies may lie, they will respond to the whisper of nature. If the landscape be unimpressive in its features, the clouds in the sky, the fleeting shadows which they throw on the earth, the purple and gold of the sunrise, the grayer and evanescent tints of the sunset, clothe it with fresh life in almost each successive day of our changeful climate. If form be appreciated by the observer more highly than colour, every copse and hedge-row will yield spoils to his note-book; or, at all events, to his memory. A waving spray of eglantine, the massy, clustered foliage of the lime, the taper form and silver veining of some specially graceful ivy-leaf, the bold knotted contortions of the stem of that glossy creeper—which forms the tapestry of the ruin, and is often the murderer of the pine,—each will be instinct with a lesson from the very fountain of life and of beauty.

But if, while seeking communion with nature, the path of the student be hemmed in by the hand of man,—if it lies through those untidy outskirts of civilisation, more depressing to the spirits than even the interior of town or city,—where clay is steaming itself into brick, and where the hideous abodes of cheap suburban life are replacing the trees once occupied by no builders but the birds; how often may he look in vain for such a message? If the free wild growth of the field be replaced by the straight walks and trim beds of the nursery-man's garden, the contrast is not much less striking. The laden branches of the espalier, full of commercial hope and promise to the owner, present to the artist a sad caricature of the clouded masses of the wild cherry; the pyramidal azalea, the pride of the grower, looks to the lover of nature like a Chinese manufacture; the largest new rose, with its card-board ruff, is not to be compared to the fine shell-like petals of the eglantine.

If we ascend from landscape and from vegetation to animal forms, the same rule holds good. Escape from the beaten path. Fly, when you can, beyond the sound of the steam-whistle. Take some road, once busy with traffic, but now three-parts overgrown with grass—some country lane on which busy traffic has never yet set foot; or a drive through a park or road, sacred to the English *cults* of the fox and the pheasant,—wherever you come within the domain of animal life, unbrutalised by human interference, you find artistic food for the mind. The swoop of the swift over a hill crest, the steady poise of the kite, the adroit hop of the rook, the scuttle of the squirrel, the dignified prowl of the fox, the martial evolutions of the curlew, and the sudden change of the aërial squadron into flecks of brilliant golden light—these tell another tale to the artist from the sullen shamble of the caged lion, or the mournful grimace of the organ-dwelling monkey.

Nature, uncabined, unconfined, unspoiled by man, supplies that milk upon which the artist lives. Art can no more be brought up by hand, with any chance of attaining a vigorous maturity, than can the human infant, in a physical sense. And if this be true with regard to the painter of landscape, or of vegetation, and to the sculptor and painter of animal forms, no less is it the case with the artist who deals with the highest class of subjects, the representation of human forms, of human passion, grace, and beauty.

In whatever way we approach this part of the subject, we shall find the same lesson repeated. If we look either to the historic, or to the geographical, distribution of art, we shall find that nothing has ever replaced the direct teaching of nature. In climates where human forms, in the sultry season, betake themselves to the water, or to the shade of the forest, for shelter or for enjoyment, the painter has the advantage of Actæon, without his fate. The artist who sees man in a state of free natural activity, can draw or can sculpture as he never can do who has worked only upon models. Thus the supreme excellence of the art of the sculptor is closely connected with the institutions of the Greek games, where not only every description of pose and of play of limb, in the best proportioned forms, was unconsciously presented by the combatants; but where also every emotion of hope and of fear, of sympathy and of anger, of surprise and of delight, was reflected from the faces of the spectators. The foot-race, or the wrestling match, afforded a lesson not less instructive in pathognomy than in anatomy.

The contrast between the sensuous, instinctive, unregarding enjoyment of life which the summer months develop on the shores of the Mediterranean, and the rigid, self-observant, self-controlled physiognomy of modern life and of northern civilisation, is as marked as is that between nature and convention, or nature ruined by man, in any other department of pictorial study. But civilisation has its own features, as well as savage life, and to seize and depict the passions of civilised man is no less a theme worthy of the artist than to draw Diana in her bath. The language has, however, become more complicated. It has lost its monosyllabic form. The artist has painfully to learn both spelling and grammar, and to advance by slow degrees to laboured composition. It is in the study of these elementary portions of his art that the artist of modern times is often so far compelled to linger that he loses the very idea that his path lies to something beyond.

An instance of the attainment of great perfection of what we may call grammatical detail, may be found in the Dutch school. The preliminary portions of the artist's toil have been mastered by some of these painters with rare power and felicity. The actual manipulation of the draughtsman, though an essential element in the craft of the painter, must be regarded as one of the lowest elements. There have been artists without this power,—authors of a sort of song without words in art,—men who could see what was beautiful, and who could imagine what was beautiful; but who could neither copy what they saw, nor embody what they dreamed. They lacked the mechanical power,—the lowest,—but none the less the essential element of artistic success.

In this mechanical power the painters of the school to which we refer are eminent. Perhaps no artist ever possessed this gift in greater vigour than did Breughel. Among ourselves it characterises Holman Hunt and Noel Paton. What they see, either in nature or in dreams, they can aid other men to see on their canvas.

But the Dutch painters have attained a higher step than that of mere faithful representation, or the fidelity to nature spoken of as Realism. They have acquired a great amount of physiognomical and pathognomical knowledge; and they have preserved and handed down this knowledge to posterity in their works. They have done on canvas what Theophrastus did in language; and have produced a number of faithful, photographic representations of certain types of human life and certain phases of human passion, which, although far from being high art, are elements of high art. They are studies of great value for the student,—grammatical exercises, as it were, which he cannot study without profit. To speak of them as beautiful, or as possessing anything approaching to immortality, would be abuse of language. They have much of the value of a collection of photographs, and while they are less reliable as to absolute truth of delineation of form, they shun the grim distortion which photography has not yet been able to avoid in its treatment of certain lines of shadow, such, for instance, as the most characteristic of all physiognomical lines—that of the meeting of the lips.

We may look at Rembrandt as the most signal and noble instance of the limited range of the realistic school. We do not forget that, in his power of dealing with light and shade, Rembrandt has a magic peculiar to himself. Objects fell on his eye wrapt in a glory or shrouded in a gloom, unperceived by less subtle vision until he threw them on his canvas. But look at Rembrandt as a portrait-painter. His likeness of himself, his grey rabbins, his sturdy burgo-masters, are not only life, but life subtly appreciated, and represented with that grasp of the main salient characteristics which is the secret of the highest art either in language or in graphic representation.

But take Rembrandt a step further. In his idea of those grand subjects which were the favourite themes of the Italian masters (the great themes of art since the era of Diocletian), and how profound is his failure. What can be more miserably undignified than the proportions of the central figure of the groups of the women brought before Christ in the Temple, in spite of the imaginative lighting of the scene, and the pathognomical force of many of the heads? What can be more paltry and undignified than the last so-called Rembrandt added to the National Gallery? Rembrandt, mastering the grammar of his art as few painters have done, limited in his studies to a certain type of form and of physiognomy, becomes a mere dauber when he attempts the ideal, however he may conceal his failure beneath his unrivalled wealth of illuminative power, which, like the rays of the sun himself, clothes with lustre both the lofty and the mean.

In the endeavour to attain a mastery of what we have called the etymology and the grammar of the art of the painter and of the sculptor, the artist must remember that exact reproduction is not a natural phenomenon. A lake, or a mirror, not only alters the tint and tone of the objects reflected from its surface, but also reverses every feature of the scene. Photography not only is as yet absolutely achromatic, but has to contend with such difficulties of distorted perspective and exaggerated shadow as seem likely long to confine sun-pictures to that humble rank, when compared with human handiwork, that chronicle bears with reference to history, or the brief holds when compared to the oration. No plant, no animal, no cloud, within definite human experience, was ever the *fac-simile* of another. And yet, within

certain limits, nothing is more definite than species. No two plants of groundsel in a garden, to take the humblest illustration, could be considered as exactly alike. But no gardener would ever mistake either of them for an individual of the most closely-neighbouring species. The artist cannot be more exact than the mirror, nor can he approach the fidelity of optical reflexion by attempting to limn each detail with absolute precision. Take such an example as a flowing beard. A keen eyesight will distinguish the individual hairs, to some of which even a distinct and important physiognomical value, or a sort of personality, may attach. But what the painter has to represent is the combination of form, of outline, of colour, and of opacity, which the vision of the actual waving mass presents to the mind. The task of the sculptor is still more difficult, as he has to effect the same object by his skilful entrapping of shadow. If either artist thought that he could produce what some people call a realistic effect by portraying hair by hair, what a wretched failure would be the result! Even photography often breaks down before the beard, representing lights as shadows, and *vice versâ*.

Actual fidelity to nature, then, does not consist in servile reproduction of detail. To say in what it does consist is less easy,—for here we cross the broad limit which separates talent from that of *genius*. The hand, and even the eye, can be educated to a certain extent,—the glance of the artist must be instinctive. That promethean fire is struck from no earthly flint.

But the direction in which the true artist will seek for the gift of true representation of nature can only be indicated by nature herself. He must seek to unveil the goddess. He must think of the law by which the Great Artificer works, if he would seek to portray his creatures, and that law is widely removed from the idea of imitation or of reprinting a definite type. It may not, as yet, or perhaps ever, be definitely apprehended by human wit; but we are yet far from being left in total darkness as to its mode of operation.

We trace, in every natural object, either a history or a promise. More correctly speaking, we ought to trace both. We see the operation of fixed law, under varying conditions. From the fixity of the law results the identity of species; from the constant change of condition results the endless variety of individuals. Thus in every living form, of either kingdom (apart from all physiological, psychological, or theological considerations), there is that which we call, in default of more accurate knowledge, a vital principle. In the grain of wheat there is a *something* which tends, under appropriate circumstances, to produce a wheat plant. The chemical relations of water and of ammonia are distributed or altered by the action of this unknown *something*, and organic chemistry elaborates the brute elements into the living tissue. We may suppose (not for the sake of assertion but of intelligibility), that that unknown *something*, in each case, is indistinguishable. So that any individual grain of wheat would develope in exactly the same manner as any other grain, every condition being exactly the same; or we may imagine that there is such a slight difference between the unknown elements as to constitute an original individuality, considering this term as inappropriate to mark the distinction of perfectly homogeneous units. The idea of the wheat plant is thus one,—specifically one,—and the presence of that idea, modified in its external expression by the conditions of growth, constitutes the specific unity of wheat. So with animal species. The idea of a fox, the definite purport in the hierarchy of life of that honoured beast of prey, is present in the poor draggled captive chained to the kennel, and in the wary ranger of the wood. But the artist who would draw a fox must grasp the idea of the animal, and then clothe the idea as nature teaches him to do. If he draws the *clothes alone*, he will only attain to the rank of an illustrator fit for Madame Tussaud. If he endeavour to develope the idea from internal consciousness, he will attempt a task which, in the first place, is beyond human capacity to perform; and, in the second, even were it preferred, would be beyond human capacity to admire or to comprehend. But more or less imperfectly developed, these two elements must be present in all work of real genius,—the appreciation of the idea, essence, or spirit, and the study of the mode in which this idea is clothed by nature with visible form. The mechanical mode of reproducing that form is an entirely separate matter.

The step may seem a long one, in the first instance, from the art of the sculptor and of the painter to that of the architect. But in the latter, no less than in the former, are the three elements of reality, conventional treatment, and imagination, to be distinctly traced. It is the latter that makes a great architect, as distinguished from a mere builder. With a memory stored with the best examples of the past, with a constructive power based, on the one hand on mathematical law, and on the other hand on a profound knowledge of the structural peculiarities of various materials, with that appreciation of the demands of the civilisation of his day which gives a conventional propriety to his work; it is the imagination that gives life and soul to the design, and makes a noble building the embodiment of a grand idea.

A great portion of what we may call the realistic part of the work of the architect lies in the fit adoption of the materials furnished by the locality. While economical, and thus truly architectural, reasons make this ordinarily desirable, there results, if proper taste is present, a picturesque effect which is truly harmonious and charming. Thus for the Swiss châlet the pine log is the natural unit of structure. For warmth and dryness, for resistance to the furious mountain blasts, and for thorough harmony with the masses of living pine-wood in which it nestles, nothing can be either more architecturally well adapted to the site or picturesquely more appropriate. Take the châlet bodily, as did the late Earl of Essex, and transport it to the thickly-planted banks of a Hertfordshire trout-stream. The Swiss cottage in Cashiobury Park is a gem of its kind. For a pic-nic it is perfection! Yet the idea that it is a toy is never wholly lost. The fisherman who loves the red-spotted trout that bask in the rapid Gade; the sportsman who has a chance of blazing at the pheasants that throng the covers; the farmer who watches the kine and sheep that pasture in the noble park; the lover of nature, who has a non-professional interest in all these,—each has a sort of dim idea that the châlet is only a very charming "folly." But when we find a somewhat similar structure perched at what, not many years ago, was the extreme limit of London to the north-east,—when we add stabling for the neighbouring cab-stand, and fill the dark-timbered gables with prosaic fountains of Bass or of Alsop,—the Swiss cottage has sunk to a Cockney vulgarity.

Another instance in which the local use of the materials natural to any locality is attended with the happiest architectural results, and where the abandonment of the elements of structure afforded by nature is for the most part attended by a vile adaptation of what has been called the "churchwarden order" of architecture, is to be found in the chalk districts of England. Chalk, which in many of its physical, though not of its chemical, qualities very closely resembles the ordinary building stone of Italy, the volcanic tufa, has one peculiarity which unfits it for the ordinary use of the builder. It freely absorbs water, and, when frost supervenes, is subject to destruction of the surface, the depth to which the frost penetrates sheiling off on the succeeding thaw.

For interior purposes, however, the lightness of the material, the ease with which it may be cut, its perfect homogeneity, and its beautiful colour, are highly to be prized. In the groined arches of many of our cathedrals, chalk forms a portion of the roof, relieved for the most part by ribs of some darker stone. But the material for the external walls which is native to the chalk districts is the flint. For a country church, a cottage, or for almost every building that does not challenge a palatial dignity, a wall of flints, chipped and fitted as the builders of the chalk district well know how to work that material, and as their ancestors knew perhaps better, is an appropriate and often admissible resource; and if the exterior is thus cased with an indestructible face (the mortar or cement employed being suitable), the interior walls may be well and cheaply made of chalk. If to the work thus effected we compare that of bricklayers imported into the district, or that of buildings, of whatever material, rough cast, cemented, or falsified in any manner to the eye, no person of any taste can hesitate which to prefer.

Into the fuller investigation of these realistic, conventional, and ideal elements, by the happy and harmonious combination of which excellence of the first order, whether in painting, sculpture, or architecture, is alone to be attained, we hope to enter at a future opportunity.

## PROPOSED DESTRUCTION OF NORTHUMBERLAND HOUSE.

WE do not willingly oppose the Metropolitan Board of Works. We believe that they act conscientiously and desire to do their duty. We must, nevertheless, express our great regret that the House of Commons did not carry Lord Elcho's motion to refer the Charing-cross and Victoria Embankment Approach Bill to a mixed committee of nine members. We agree with the mover that this is no mere private but rather an imperial question. All who are interested in the welfare of the metropolis should look narrowly into the question, and be properly jealous of the alterations which are proposed to be carried out. It is too important a question to be dealt with by any private incorporation, however popular or powerful, and an important question as to the beauty of the metropolis, as far as its street architecture is concerned, is bound up in this Bill. Lord Elcho warned the House against placing too much faith in the good taste and discretion of the Board of Works, and urged that, so far from being infallible, that Board had made more than one mistake which had been loudly condemned. He declared that many of the so-called improvements in the metropolis were carried out in rather "a God-forsaken way," and he besought the House not to give its sanction to any scheme which proposed further to proceed in that direction. He protested against an old palace like Northumberland House, so rich in historic associations, and so well fitted to adorn the locality in which it was situated, being treated by Parliament as it would treat a mere railway in the wilds of Ireland. Mr. Beresford Hope and others supported his views, but the motion was lost.

New roads must be formed, fresh means of access must be obtained, improvements must and will be made; but there are two ways of carrying these on. If we continue in our present course, there will be nothing left in London dating from an earlier period than that of the establishment of the Metropolitan Board of Works,—a loss the magnitude of which could not be estimated. The memorials of the various epochs through which London has passed are priceless, and should be most jealously guarded.

If there were no other way of getting from Charing-cross to the Embankment than by the destruction of Northumberland House, with its associations, its art-collections, and most interesting Jacobean façade, we should feel that resistance would be useless, although we will not admit that even then it should not be attempted. We believe that an association, a touch of sentiment, a reminder of the past, may under circumstances be of more value in the education of a nation than a short cut. But we are strongly of opinion, with all respect for the professional advisers of the Board, that an equally good approach might be obtained without this costly sacrifice. We are not alone in this opinion. The late Sir James Pennethorne took the same view after long and anxious consideration,—of itself sufficient argument in favour of reconsideration of the scheme. We do most earnestly hope that the House of Lords may yet come to the rescue.

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AT the last meeting of the Metropolitan Board of Works, the Works and General Purposes Committee submitted the proposed contracts with the Duke of Northumberland for the purchase of Northumberland House and property required for the formation of the approach from Charing-cross to the Victoria Embankment, and recommended that the same should be approved and the seal of the Board affixed thereto.

Mr. Newton, in moving the adoption of the Committee's report, referred at some length to the opposition in the House against the motion of Lord Elcho. 500,000*l.*, it had been said, was a very large sum to pay for Northumberland House, but he wished to explain that that amount covered much more. In addition to the house, stables, and gardens, there were four large shops fronting the Strand, four houses and warehouses in Northumberland Court, and 24 houses in Northumberland Street, all of which were included in the amount. The purchase included an area of at least five acres.

Mr. Savage hoped that a considerable portion of the amount paid would be recouped.

Mr. Turner called attention to the fact that 75,000*l.* per acre having been paid for the site of old St. Thomas's Hospital, 100,000*l.* per acre could scarcely be considered an extravagant price for such a site as that of Northumberland House.

Mr. Taylor thought that this would be one of the grandest improvements of the metropolis, and that the public would have no reason to be dissatisfied. He also expressed an opinion that the thanks of the Board were due to the duke for having made terms without driving them to unnecessary expense.

Several other members addressed the meeting, congratulating the chairman upon his successful opposition in the House, and expressing an opinion that the price paid for the property was fair and just.

The report was then adopted.

## RAILWAY EXPENDITURE ON NEW WORKS.

### THE GREAT WESTERN AND THE GREAT NORTHERN.

IN last week's *Builder* we drew attention to the large expenditure about to be incurred in the construction of new works by several of the leading railway companies, particularly specifying the heavy outlay of the London and North-Western Company. The proceedings of the Great Western Company, at their meeting held on Friday last (the 28th ult.), show that that company, like the London and North-Western, are also about to embark in a heavy expenditure in additional rolling stock and new works, amounting to nearly half a million sterling. The shareholders sanctioned an outlay of 467,690*l.*, of which 167,000*l.* will be expended in new engines, carriages, and wagons; doubling the Bristol and South Wales Union line, 19,500*l.*; additional station accommodation at Swansea and Neath, 30,000*l.*; new station at Reading, 10,000*l.*; new engine-shed at New Milford, 8,000*l.*; new boiler-shop at Swindon, 9,000*l.*; machinery and siding accommodation for workshops, 10,790*l.*; narrow-gauge arrangements and goods sidings at Bristol, 19,800*l.*; new warehouse at Manchester Dock, Liverpool, 5,300*l.*; new basin at Swan Village, 7,420*l.*; increased sidings and goods accommodation at Llanelly, 11,600*l.*; sidings between Acton and Maidenhead, 14,300*l.*; increased station accommodation at Chipping Norton, Hockley, Wrexham, and Waterford, 13,180*l.*; additional sidings and other accommodation at Briton Ferry, Gloucester, Birkenhead, Great Bridge, Wootton Bassett, and Llantrissant, 60,200*l.*; block telegraph, for signalling and locking apparatus on the line generally, 41,000*l.*; and 40,000*l.* for the Bristol Port and Pier Extension Railway. In addition to these items of expenditure, the shareholders are about to incur an outlay of about 10,000*l.* in new church and chapel buildings, a special expenditure which is peculiar to the Great Western Company. The population of New Swindon consists almost entirely of the servants of the company, and for some years past the shareholders, by their individual subscriptions, have been enabled to erect churches, chapels, and schools in the district. The present half-yearly report states that the population of the district now exceeds 12,000, having more than doubled itself since 1860; whilst the church accommodation is scarcely sufficient for 1,200, and 10,000*l.* at least are now required to provide the new church and chapel buildings needed. At the meeting on Friday, the chairman invited the contributions of the shareholders towards this object, and a large amount was subscribed in the room, which will enable the company shortly to commence the erection of the buildings required.

At the meeting of the Great Northern Company, a vote of 186,671*l.* was granted by the shareholders for new works to be constructed, in order to meet a largely-increasing traffic. About 45,000*l.* of this sum is to be laid out at King's-cross, for increased accommodation of metropolitan traffic at this station, in improving the platforms, and various other matters in connexion with the working of the local passenger-trains. The next large item of this intended expenditure is for the enlargement of the Doncaster Station, which is now used by the Midland, South Yorkshire, North-Eastern, and Lancashire and Yorkshire Companies, as well as by the Great Northern Company itself. The chairman stated at the meeting that the company were at present paying interest upon nearly a million of unproductive capital, but that before the year was out a great deal of that would be productive. The new line to Liverpool would be opened in June, whilst the line to the Alexandra Park was to be opened in May next. As respects the intended opening of the Alexandra Park in May, the chairman expressed a confident opinion that it would turn out to be a considerable source of profit to the Great Northern Company. He added that on the very best authority he might state that the promoters of the Alexandra Park enterprise were at this moment laying out a very large sum of money to complete the palace and grounds, in anticipation of the opening during the ensuing summer.

The directors of the East London line are looking forward to the prospect of highly-favourable results on the completion of the extended line under the London Docks, now in progress, and the junction with the Great Eastern line in the City, and the London and Brighton and South-Eastern lines at New-cross. The report, speaking of the line as completed, says, "It will be the means of direct communication between the City and the Commercial Docks, and afford great facilities for the carriage of the vast quantity of timber which passes from those docks to the north and east of the metropolis, and to the surrounding counties. It will have a branch into the new Foreign Cattle Market at Deptford. By means of the junction with the South London Railway at the Old Kent-road, it will afford the best line of communication from extreme west to the City, and to the northern and eastern districts of the metropolis. The exchange station with the Blackwall Railway at Shadwell will afford to the graziers and cattle dealers from the eastern counties improved communication with the Foreign Cattle Market, and the railway will give to a large section of the inhabitants cheaper and quicker access to the attractions of the Crystal Palace, and to the residences in the picturesque and healthful counties of Kent, Surrey, and Sussex.

## SOME DETAILS OF THE CENSUS.

THE population tables, of which instalments have begun to be delivered, contain, as may be supposed, elaborate as they are, some curious particulars. Division I. consists of London, including parts of the counties of Middlesex, Surrey, and Kent, the points on its boundary embracing Crossness, Plumstead, Sydenham, Lower Norwood, Tooting, Wimbledon Common, Hammersmith, Wormwood Scrubbs, Kensal Green, Hampstead, Highgate, Stoke Newington, Hackney, Bow, Bromley, and Poplar, but not Stratford, or any locality in Essex, excepting a small patch of land at Barking Creek.

The number of persons in public institutions when the census was taken was 77,516, in 445 institutions. Of these there were 26,313 paupers, including pauper children in workhouses and workhouse schools; 7,521 patients in hospitals, 3,340 lunatics, 6,344 prisoners, 913 inmates of reformatory schools, 8,301 military men and their families in barracks, 121 in training in H.M.'s ships, and 15,531 in orphan asylums and other institutions not enumerated above. Of the total inmates, 9,127 were officers and their families. In the above return schools for the blind, the deaf and dumb, and for orphans, are included, but not colleges, training colleges, private schools, model lodging-houses, or police-stations. The institutions having the largest number of inmates among the above are,—Paddington Workhouse, 452; Kensington Workhouse, 570; Chelsea Barracks, 1,289; Millbank Prison, 1,280; Wellington Barracks, 1,184; Marylebone Workhouse, 1,844; Metropolitan Asylums District Small-pox Hospital, 465; Albany-street Barracks, 431; St. Pancras Workhouse, 1,541; St. Bartholomew's Hospital, 747; Christ's Hospital, 827; Middlesex House of Correction, 1,644; Bethnal-green Workhouse, 1,080; Bethlehem Hospital for Lunatics, 321; St. Luke's, 191; Surrey County Lunatic Asylum, 878; Royal Artillery Barracks, Woolwich, 2,000; Infantry Barracks, 1,045; Army Service Corps, 595; and Royal Engineers, 143.

The number of persons on board sea-going vessels in the River and docks, on the night of April 2nd, 1871, was 5,739, and, in addition, 989 in boats and barges. Within London Division there were on board vessels of all kinds, 6,317 males and 411 females on the night in question, of whom 1,064 were in Poplar.

In the London Division there appears from the returns to be 74,455 acres of land, 907 acres of water, and 2,718 acres of tidal water and foreshore,—total, 78,080 acres. Stoke Newington has 49 acres of water; Hackney sub-district, 35 acres; St. John (St. George's in the East), 30 acres; Limehouse, 29 acres; Bow, 37 acres; Poplar, 160 acres; St. Mary, Rotherhithe, 175 acres; and Wandsworth, 28 acres. East Plumstead has 333 acres of tidal water and foreshore; Woolwich Arsenal, 287 acres; East Greenwich, 281 acres; Battersea sub-district, 159 acres; Poplar, 300 acres; St. Mary, Rotherhithe, 152 acres; and Fulham, 174 acres.

The population of London in 1631 was, according to Captain John Graunt, F.R.S.,—wards within the walls, 71,029; without, 40,579; old borough of Southwark, Bridge Without, 18,660; or total,—

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| 1631 | population | 130,268 |
| 1801 | ,, | 958,863 |
| 1811 | ,, | 1,138,815 |
| 1821 | ,, | 1,378,947 |
| 1831 | ,, | 1,654,994 |
| 1841 | ,, | 1,948,417 |
| 1851 | ,, | 2,362,236 |
| 1861 | ,, | 2,803,989 |
| 1871 | ,, | 3,254,260 |

The population stated above is of London within the new Tables of Mortality, 1871.

## ARCHITECTURE IN THE ROYAL SCOTTISH ACADEMY.

ECCLESIOLOGICAL revivalism has produced many extravagances in design, especially where originality has been aimed at. Eccentricity is often amusing, but seldom deserving of admiration. "Piling up the agony" and caricaturing detail is not the way to produce original works, yet such seems to be the prevailing idea of many of the younger members of the profession. We do not advocate a dull reiteration of copied detail, but that the old forms be frankly accepted and a new expression given to them; that the relation between construction and ornament be carefully studied; that where dignity is aimed at, massiveness and simplicity be combined with richness of parts, so as to produce a feeling of harmony and repose; that where usefulness and comfort are requisite, they should not be sacrificed to whim and caprice. In short, we may say the most original design, as a rule, is that in which most thought is displayed.

The entire absence of thought in many of the designs exhibited is patent, the sole object of the design being apparently to produce something striking. Mr. J. B. Pirie, for example, gives us "An Architectural Idea," a church bristling with points like "quills upon the fretful porcupine": 5 per cent. of the detail lavishly scattered about, if judiciously concentrated, would produce a richer effect than is here attained. Mr. C. W. Somerville is also striving after novelty in his "Adaptation of the Dome to Mediæval Ecclesiastical Architecture." The Dome, "the grandest product of the Renaissance," is here deprived of all its grandeur. The designer seems to think it requisite that the whole roof should be formed of domes, so that we have one large and several small ones, like a hen followed by her chickens. Mr. Somerville also gives us his idea of a "Villa Residence," the chief peculiarity of which consists in the introduction of a number of columns (?), the diameter of which exceeds their height. Mr. Patrick Auld exhibits a "Design for a Public Hall," the whole wall-surface of which is crowded with ornament, the general effect being weak in the extreme. We are far from wishing to discourage our younger brethren, but they must "learn to creep before they can walk"; let them make the attempt, and they will find it more difficult to produce a simple well-proportioned elevation, almost devoid of detail, than the florid absurdities in which they delight. For example, look at the "Competitive Design for the Established Church at Oban," by Mr. J. W. Small,—a mountain church very suitable for the locality, with pure and fresh detail, not a single feature too much, and rich withal in elegant simplicity. We should not be surprised, however, to learn that a more florid but less beautiful design was selected by the local committee. Your local committee is apt to expect too much; having, with great exertion, collected 2,000*l.* or 3,000*l.*, competitive designs are called for, and none of those submitted, however grand, exceed their expectations. A spire, of course, the church must have; and when carried out the result is the production of an architectural toy. The successful design for the "Free Church at Morningside," by Messrs. Macgibbon & Ross, is an example of this sort of thing. The tower and spire are in themselves well composed, but the effect of the whole is pert and assuming: if more bulk were given to the body of the church,

and a simple belfry added, the result would be much more satisfactory.

That such is not always the outcome of a competition, is evidenced by the design of the interior of the "Proposed Holy Apostolic Church in Edinburgh," by Mr. R. Anderson. The instructions to the competitors were to the effect that the church was to be Norman in style, but Mr. Anderson seems to have persuaded the building committee to accept a Gothic version of that submitted by him in competition. The style is Early French; the plan provides apsidal choir, transepts, and nave, all without aisles. The windows are placed as high up in the walls as if in a clearstory, and the wall space below is used as a field for pictorial decoration. From the ground spring slender shafts to support the roof principals, and in the choir the upper part of the shaft carries a niche, with statue. The choir windows are single lights, those in the nave double, with large uncusped circular openings in the heading. Simplicity and elegance are the characteristics of this interior, which is a very satisfactory rendering of a church without aisles, —an accessory which could not be attained in this instance, owing to the peculiarity of the site. Mr. R. Thornton Shiells exhibits the interior of "A Private R.C. Chapel," which depends chiefly for effect upon the rich colouring of the wall surfaces, and the introduction of statues, which in the drawing are made to appear like plaster casts, as probably they are. Mr. Anderson exhibits the designs for two altar tombs, both carefully studied. The "Memorial to the late Earl of Kellie, to be erected in St. John's Church, Alloa," is especially worthy of commendation.

The "Odd Fellows' Hall, Forrest-road, Edinburgh," in course of erection, designed by Mr. J. C. Hay, is a welcome addition to the architecture of what is developing into one of the most picturesque portions of the south side of the city. The style of the buildings is Scottish Domestic, and Mr. Hay, while adhering to the general characteristics of the style, has not scrupled to blend with it new features. Although the façade is a narrow one, it produces a good effect, Mr. Hay having made it the central and culminating point of the block of buildings of which he is the architect.

Opposite this block is another designed by Mr. R. T. Shiells, of which he sends a perspective: a series of gables, oriels, and chimney-shafts, treated in a bold and effective manner, give variety and contrast to the composition.

The "Addition to the Mansion House of Abercairney, Perthshire," by the same architect, is not so satisfactory. The style of the building is of the sort of Gothic which prevailed at the beginning of the century, and the additions are carried out in exactly the same style, so that it is impossible to tell the new from the old. Advantage might surely have been taken of the advance of knowledge in this matter, without detriment to the general effect of the mansion.

The Mansion-house of "Cairn-dhu," designed by Mr. Wm. Leiper, is a rich and effective composition, with much freshness of detail. It has all the picturesqueness, without the sternness of the Scottish baronial residence. Mr. Leiper exhibits designs of one or two other residences of less importance, which all display the hand of an artist.

Mr. Charles G. H. Kinnear shows us the "North Front of Auchmore House" as altered and enlarged. From a *vignette*, it appears that the original mansion was a strange jumble, without dignity or picturesqueness. This the architect has combined into a stately château.

"Hill Wood, Corstorphine Hill," Messrs. McGibbon & Ross, is spoilt by having a massive embattled tower as its chief feature, a feature more suited to an ancient citadel than to a modern mansion. More satisfactory is their design of the "New Lecture-hall of George Watson's College School," in the "New Grec-French style. It will contrast, but not be out of keeping, with the building to which it is an adjunct.

The "Telling-room of the Royal Bank, Glasgow," designed by Mr. J. Dick Peddie, is a severe, business-like, and appropriate apartment, sufficiently rich in detail to be in keeping with its purpose.

The "Lady Flora's School, Newmilns," is designed by Mr. F. T. Pilkington, in a style suggestive of its designation; the carved projecting barge-work calling up visions of a sunny, sheltered nook where children delight to play and wild flowers to grow.

Could we in this country of ours house all our workmen as Mr. James Gowans does at "Drumbowie, Linlithgowshire," who can tell what the result would be? Beneficial, surely; for if comfort and elegance combined do not produce a beneficial result in this direction we are greatly mistaken.

## NEW SOUTH WALES.

NEW SOUTH WALES is the oldest and longest settled of the group of Australian Colonies. It ranges from about the 28th to the 37th degree of south latitude, which enables it to yield in profusion produce varying from that of tropical countries to that of Great Britain; while its pure atmosphere and mild climate are free from the drawbacks of either.

Alone amongst the Australian group, it possesses a coal supply which is practically unlimited, and its metallic mines are now being developed with a vigour and activity which will render it the greatest centre of mineral industry in the southern hemisphere. Its railway system is in course of rapid development. The capital city, Sydney, is situated on the finest harbour in the world, and is unsurpassed either for the natural beauty of its site or for the splendour of its buildings.

An interesting paper, reviewing the progress of the colony during the last ten years, has been recently read before the Royal Society at Sydney, by the Auditor-General, Mr. Rolleston. It is based on the official statistics laid before the Colonial Parliament in 1872; and the following abstract of the information it affords will be acceptable to the numerous class of persons who are interested, either actively or prospectively, in this flourishing colony.

*Population.*—The population in 1861 was 350,860; and, in 1871, 503,981; showing an increase of 43 per cent. The proportion of males to females is about 11 to 9. It is remarked on these figures, that if the land of the colony were parcelled out equally amongst this population, there would more than 400 acres fall to the lot of each person; and as the soil, independently of its natural productiveness, is teeming with mineral wealth, and capable of sustaining perhaps twenty millions of souls, it is impossible not to hail with pleasure the prospects of accession to the population which the funds for assisted emigration, now appearing on the colonial estimates, hold out to the people of Great Britain.

*Live Stock.*—This is shown in the following figures:—

| | Horses. | Cattle. | Sheep. |
|---|---|---|---|
| In 1861 ... | 273,389 ..... | 2,620,363 ..... | 6,145,651 |
| In 1871 ... | 304,100 ..... | 2,014,868 ..... | 16,278,697 |

Thus it appears that for every 100 of the population there are 400 head of cattle and 3,200 sheep; so that there exists there at least no apprehension of a famine of butchers' meat.

*Wool, &c.*—The seaward export of wool was as follows:—

| | lb. | Value. | Average Value per lb. s. d. |
|---|---|---|---|
| In 1862 ..... | 20,988,393 ..... | £1,801,186 ..... | 1 9 |
| In 1866 ..... | 36,980,685 ..... | 2,830,348 ..... | 1 6 |
| In 1871 ..... | 65,611,953 ..... | 4,748,160 ..... | 1 5 |

The total value of the exports in 1871 produced from the flocks and herds of the colony was as follows:—

| | |
|---|---|
| Wool exported seawards ..... | £4,748,160 |
| Live stock, preserved meats, raw hides, tallow, &c., exported seawards ..... | 468,606 |
| Exports overland for shipment at the ports of the adjoining Colonies ..... | 3,381,867 |
| Total..... | £8,598,633 |

Being about 17*l.* per head of the population from pastoral productions alone.

*Grain.*—The average yield of the wheat tillage in 1862 to 1867 was about 10 bushels per acre; and the average yield in 1868 to 1872 was 12 bushels per acre; the average prices at Sydney being 8s. in the former period, and 6s. in the latter.

| Wheat. Acres. | Maize. Acres. | Other Crops. Acres. | Total. Acres. |
|---|---|---|---|
| *Average Five Years*, 1862 *to* 1867. | | | |
| 124,666 ..... | 101,225 ..... | 125,614 ..... | 351,505 |
| *Average Five Years*, 1868 *to* 1872. | | | |
| 160,965 ..... | 118,301 ..... | 155,738 ..... | 435,004 |

The annual value of the imports of wheat and flour, deducting exports, has averaged in the decade, 472,560*l.*

Maize maintains a steady average yield of 30 bushels per acre. There is a large export trade in this grain, and it is valued for export about 3s. per bushel.

*Sugar.*—In the statistics of 1864, two acres are returned as having been first planted with sugar-canes, producing 280 lb. of sugar; but in 1872 no less than 4,393 acres were under cultivation. The yield appears to be about one ton of sugar per acre, and the future of this industry will probably be a brilliant one in the northern districts of the colony, where the climate is suited for it.

*Wine.*—From 1,459 acres under vine culture in 1863, there is an advance to 4,152 acres in 1872, producing 413,321 gallons of wine, or nearly 100 gallons per acre.

*Gold.*—The average annual value of the gold obtained in the decade has been 1,159,173*l.* The total value of the gold raised in the colony since the first discovery of the gold mines in 1851 has been upwards of 25 millions sterling.

*Coal.*—New South Wales is here without a rival, and may calculate on a production limited only by the demand for ages to come. The average amounts raised in the decade has been,—

| In the five years | Average tons per annum. | Average annual value. | Average value per ton. |
|---|---|---|---|
| 1862 to 1866 ..... | 563,835 ..... | £281,998 ..... | 10s. |
| 1867 to 1872 ..... | 882,272 ..... | 347,957 ..... | 8s. |

*Trade and Commerce.*—The exported produce and manufactures for the decade have reached 52,043,742*l.* in value. This is at the rate of 12*l.* 3s. 6d. annual value per head of the population; while the exports of Great Britain for the same period were at the rate of 5*l.* 16s. only. Relatively, therefore, the wealth of this community has been increasing in a ratio more than double that of the mother country.

The value of the imports seawards in the decade was 84,832,363*l.*; averaging nearly 8¼ millions sterling for a population of less than half a million.

For the last year of the decade, 1871, the following figures are given:—

| | |
|---|---|
| Total imports by land and sea ..... | £9,609,508 |
| Total exports „ „ ..... | 11,245,032 |

These figures exhibit an import trade at the rate of 19*l.* 1s. 3d., and an export trade at the rate of 22*l.* 6s. 2d. per head of the colonial population; being relatively more than double the import trade and nearly treble the export trade of Great Britain per head of the population, according to the values respectively given in the Customs' returns of the two countries.

With cheap meat, cheap coals, cheap bread, a splendid climate, and a practically unlimited demand for labour, few countries offer such inducements to intending emigrants as this prosperous colony.

## ARCHITECTURAL ART IN INDIA.

LAST Friday evening, the 28th ult., Mr. T. Roger Smith read a paper at the Rooms of the Society of Arts, Adelphi, on "Architectural Art in India." Mr. James Fergusson, D.C.L., took the chair, and there was a good attendance.

In the course of Mr. Smith's remarks, he said that the style native to England—the English Gothic,—was not fitted to be transferred to India without large modifications. All its forms were designed to be seen by a faint light. It was essentially fitted to a cold, damp climate; and while, on the one hand, its characteristics would require many alterations in order to cope with the glare of Indian sunshine, on the other hand its provisions for carrying off the gentle showers, or even the steady downpour of an English wet day, would prove quite inadequate to cope with the torrential rains of a tropical storm. In many instances the adoption for India of Renaissance architecture, as practised in England, would be less impracticable than the adoption of English Gothic. The style took its rise in a sunshiny country, and though all the changes we have made in it have been introduced with a view to fit it for use in a colder climate than that of the land of its birth, still those changes have not been many nor great. The circumstance that the heat and the light were so intense in India would always occasion many variations in the buildings, either Gothic or Classic, which were put up.

Most of our building work in the East had not been hitherto creditable to our taste, though it bore witness to our energy and vigour. The time had come when it ought to be held imperative, both for the Government and for private individuals, to render their buildings models of good taste. In order to do this their design, and the design of such decoration as they receive, ought to be intrusted to men of cultivated architectural taste; and the style adopted for them ought to be, not a direct imitation of any Asiatic

type, but an adaptation of those European styles which have grown up in sunshiny regions. Such styles were ancient Roman, or even Greek (when good enough materials and workmanship were procurable), or the Romanesque, Gothic, and Renaissance of Southern Italy, Southern France, and perhaps Spain. In treating any of these styles certain features of the architecture native to tropical countries would have to be incorporated.

There was but one limit to the degree to which these features of Eastern art may be appropriated: they must not be so freely used as to cause the edifice to lose its European style. Had we a distinctive English style, we ought, unquestionably, to use it in our colonies, as Rome did in hers, with such changes as local circumstances made necessary. But though this was, unhappily, not possible to us, there were in existence familiar European styles, well suited to the purpose; and it appeared only reasonable that as our administration exhibited European justice, order, law, energy, and honour, so our buildings ought to be held up as a high standard of European art. They ought to be European both as a rallying-point for ourselves and as raising a distinctive symbol of our presence, to be beheld with respect, and even with admiration, by the natives of the country.

The Chairman said that it was only within the last twenty years that architects had gone to India; and they had been principally employed by the Government and the railways. The question of what style of architecture to employ in India was a serious one. As regarded churches, he thought that the Gothic style should be used. A pointed arch, he said, was very difficult for India. The only good Gothic building he knew in India was one erected by Captain Kitto at Benares, which had a short Tudor arch that kept out the sun very well. He recommended the adoption of the Italian style of architecture, with some modifications. The natives, he said, used stone as we do iron; their style could be copied in iron, and thus we could get many native styles which would suit the climate of the country. This would be European, but still sufficiently native; but the question was one which could only be worked out in England. He thought that we should soon have buildings in India which would be examples of great beauty and elegance. We owed, he said in conclusion, a debt of gratitude to Mr. Smith for having brought forward the whole question so prominently; and if the people of India could read his paper it would influence their style of architecture materially.

## BUILDING OPERATIONS IN BRADFORD.

AT the present time an extraordinary number of town improvements are in progress in Bradford. Among these may be enumerated new sewage works, defecation of sewage, new Town-hall, new covered market, new wholesale market and abattoir, extension of gas-works and water-works, new main artery from Sun Bridge to Thornton-road, the purchase of parks, proposed new fire-brigade station, the widening of old thoroughfares, and a more thorough and efficient system of paving, in addition to the costly new arterial lines proposed in the local Improvement Bill.

Thanks to the public spirit of the owners, some of the improvements are being effected at a comparatively moderate expense. Of these are the widening of Towler-lane and Duckworth-lane, in Manningham, and other thoroughfares in that neighbourhood, now in progress. A portion of Silsbridge-lane has been widened, but the completion of this improvement has been delayed by the price asked by an owner of land at the outlet of Thornton-road. The corporation, however, has the opportunity, by the removal of a few old houses and the purchase of some land unbuilt upon, to extend the lane into Thornton-road opposite to Longside-lane. Wigan-street is being opened out into Longlands-street. Considerable progress has been made with Canal-road, and this portion of the borough is beginning to assume quite a new aspect. The widening of Manningham-lane to 20 yards is gradually being effected, but Christ Church still blocks up one of the best entrances to the town in this direction. The owners, however, are willing to dispose of the church and site for 10*l.* a yard, and this purchase will require to be made before Darby-street can be considered a satisfactory thoroughfare. So far as the street improvements have gone, the cost has not been so heavy as might have been expected, the corporation having recouped a large part of the outlay by the sale of land not required for the thoroughfares. This plan will be followed out in the other undertakings that will be gone on with. The corporation, actuated by a desire to meet the requirements of the town, has boldly launched out into schemes that will tend to improve the communication between one part of the town and the other, and to increase the healthfulness and prosperity of the borough.

## PROVERBS FOR GENERAL CIRCULATION

THE characters of giants have often to be written by dwarfs, who, though tip-toed and confident, are quite unequal to the task.

The scoundrel who, *mal prepense*, injures or robs a man, will defame him in order to justify his crime.

Talents, like riches, excite the cupidity of those who are in want.

It is better to be dull, with an ardent desire to learn, than clever with no disposition to improve.

When the powerful conspire to hustle a man, he will be fortunate, indeed, if he escape without a scar.

A prophet is without honour in his own country, and especially in his own family.

Men are pre-Raffaellite in hypocrisy. They imitate the real thing so closely, that it is difficult to tell which is which.

The pleasures of anticipation, imagination, and hope are the sunshine of life; but the rough weather of disappointment often does a man the most good.

Meanness is always prying into, and harping upon, antecedents; charity, with more wisdom and generosity, looks to sequents.

Far more labour and talent have been sacrificed to error than to truth.

Everybody who sifts doesn't find the jewel.

Truths lie scattered broad-cast, through the ages, waiting eyes to see them.

Nations which encourage spying will ere long be enslaved.

Espionage is an antidote which, in the end, is found to be worse than the disease.

Treachery is the unpardonable of crimes; it saps all the foundations of society.

Religion on the tongue, and self in the heart, is the way of the world.

Keep in the temperate zone if you would wish to travel pleasantly and safely.

## THE BAD CONDITION OF DUBLIN.

EVERY day justifies statements made by us long ago, and from time to time, and usually denied. In the last weekly return of births and deaths, issued by the Registrar-General for Ireland, we read that the deaths registered in Dublin for the week represented an annual mortality of forty in every 1,000 of the population, while in London the rate was twenty-six. In Dublin the births were 149, and the deaths 245. Moreover, for the corresponding week of the years 1864 to 1872 inclusive, the average births were 183, and the average deaths 192.

Surely such a state of things demands immediate Government inquiry, for unfortunately the local powers have been invoked in vain, as would appear from the proceedings of the chief sanitary authority of Dublin.

For several years past the sanitary work of Dublin has been entrusted to the corporation of that city, and the machinery employed for the purpose consists of a Public Health Committee of its own body, a medical officer of health, a city analyst, a secretary, and eight acting sergeants of police, as nuisance inspectors, with two full sergeants as chief nuisance inspectors.

At times, especially at times of epidemic disease of great severity, the medical officers of the several dispensary districts have been asked by the Public Health Committee to send in reports of cases of infectious sickness, and especially those appearing to arise in connexion with sanitary defects. Such reports have been more or less frequently made by those gentlemen, some of whom have received official letters of thanks from the Public Health Committee for their important services to the public.

So important is it thought to have the services of a body of professional men conversant with the people and their wants, in a sanitary point of view, as well as with the several localities haunted by successive epidemics, that public functionaries and public lecturers in Dublin have strongly recommended their regular employment in connexion with the sanitary machinery of the Dublin corporation, and this view has been also strongly advocated by the Dublin Sanitary Association.

Great complaints have been from time to time made of the inadequacy of the scavenging system of Dublin, which consists of imperfect cleansing of the streets, the refuse matter being, at times more or less infrequent, removed from the streets, and thrown into large yards, situated generally in some of the most densely-peopled parts of the town, inhabited by the poorer working classes, such localities being but too often, as might be expected, the scenes of outbreaks of disease.

No provision whatever exists for the cleansing of middens, ashpits, or latrines by the Corporation, while, owing to various circumstances, it is found either impossible to get this necessary duty performed by persons who used to earn a livelihood in this way, or their charge is so extremely high as to prevent any except the rich indulging in the luxury of cleanliness.

It is hardly necessary to add that this want has led, in the opinion of very competent judges, both lay and medical, to much illness, but too often of a spreading or contagious nature.

This matter has also been brought under the notice of the Corporation repeatedly by the public, who express a willingness to pay a reasonable charge for such cleansing if the Corporation would establish a regular service, such as exists in many English and Continental towns, frequently without charge to the public; but epidemics may come and epidemics may go, as well as men, and still nothing is done by the Dublin civic dignitaries in this needful matter.

Our space does not now permit us to enter into the full details of the recommendations of the Sanitary Association of Dublin, and of the reply returned by the Public Health Committee of the Dublin Corporation, which has excited much discontent. We recommend that body, interested as they doubtless must be in doing what is best for the health of Dublin, to adopt the request of the Dublin Sanitary Association that they will reconsider the suggestions already made to them.

It is indeed a matter of serious import to reflect that Dublin, with only 33 persons to the acre, as stated by Dr. Stokes, Regius Professor of Medicine, in his recent public lecture, should contrast so unfavourably as to birth-rate, mortality, and sickness with Edinburgh and London, with their population of 40 persons per acre, and Glasgow, with 89 persons per acre.

Raise the moral and the physical condition of the Dublin humbler classes, and there will be less need for police supervision, and the chronic discontent and smouldering disaffection, or treason, if the word must be used, as well as endemic and epidemic sickness and a heavy mortality, will cease to sap the vitals of the people of Dublin, and so to curtail the power and hinder the welfare of our common nationality.

## MEDALS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT a special general meeting of this Institute, held on Monday last, Mr. Horace Jones, V.P., in the chair, it was unanimously resolved that, subject to her Majesty's gracious sanction, the Royal Gold Medal (annually bestowed on some eminent architect, or author of works on architecture) should this year be awarded to Mr. Thomas H. Wyatt, president of the Institute.

At the same meeting, the Soane Medallion (with 50*l.*, under certain conditions of Continental study) was awarded to Mr. William Frame, for his design for a Public Hall; while medals of merit were voted to Mr. Frederick C. Deshon, and to Mr. J. H. Eastwood, for their designs.

Mr. A. H. Kersey gained the Institute Silver Medal and five guineas for a large set of drawings illustrating St. Mary's Abbey, Malton, Yorkshire; and, in the same competition, medals of merit were awarded to Mr. Arthur Hill for his drawings of Cormack's Chapel, Cashel, and to Mr. Thomas Garratt for his drawings of St. Mary's Abbey, Lilleshall, Shropshire.

A medal of merit was awarded to Mr. Alfred Jowers for his essay on "Architectural Criticism."

The next meeting of the Institute will be held on Monday, the 17th inst., when Mr. Alan S. Cole, of the South Kensington Museum, will read a paper on the art of "Sgrafito Decoration."

## AWARD OF ROYAL GOLD MEDAL, R.I.B.A.

SIR,—Favour me with a brief space in your next impression, to say that my own experience, derived from a *long tenure* of office as member of council, in various capacities, of the R.I.B.A. does not agree with certain statements contained in the letters of your correspondents "M.I.B.A." and "Civis," in the two last numbers of the *Builder*.

The circumstances connected with the proceedings of the council when considering their recommendation as to the recipient of the Royal Medal, annually laid before the members of the Institute, were well known to me for many successive years, commencing with the first award to Mr. Cockerell, R.A., in 1848.

So far was a seat at the Council Board from being held a bar to the claim of a worthy recipient, that, in fact, the fourth award of the Royal Medal was the result of the recommendation made and advocated at the Council Board by one of the Vice-Presidents, who himself drew up the highly but well-merited complimentary resolution by which that award of the medal to *another member of the then existing Council* was submitted to the consideration, decision, and final approval of the subsequent general meeting.

That the vice-president in question, subsequently president, Mr. Cockerell, R.A., would have infringed, either in spirit or in deed, any honourable rule or understood punctilio in a matter which he had taken on himself the responsibility of initiating and heartily supporting, is as probable as that the honoured, well-known recipient of the medal would have availed himself of any such a palpable infraction of any known or implied regulation, and accepted the irregularly proffered mark of professional distinction! Nor, we may be sure, would the Council have sanctioned any such proceeding in which they themselves were implicated.

I have never been aware, nor do I believe, that the duty of the President, whether professional or *non*-professional, requires him to submit any suggestions to the royal donor of the medal (I have served under both classes of Presidents). The general meeting having accepted the recommendation of the council (or otherwise), the duty of the President, or of his representative, is to submit the final award for the royal sanction. This being graciously granted, instructions for striking the medal are formally given to the Government medallist. N.

## A JOINERS' FESTIVAL.

### THE WAGE QUESTION.

LAST week the annual festival of the Greenock joiners, under the auspices of the Greenock and Greenock East Branches of Associated Carpenters and Joiners of Scotland, took place in the Town-hall, the area of which was filled, about 700 being present. Mr. James Aitken occupied the chair, and made an address on various topics of pressing interest. Towards the close of it he said,—Thirty-five years ago joiners' wages ranged from 15s. to 17s. per week. You are all aware that they are now nearly double, and the wages in other occupations have increased in nearly the same proportion. This state of matters very naturally gives rise to a question that is worth our consideration. Have workmen benefited in the proportion that wages have risen, or are the comforts they enjoy much greater on account of the increase of wages? It will be pretty generally admitted that they have not. My own impression is, that workmen would have possessed all the advantages they now do had wages remained the same as they were thirty-five years ago. In short, I go the length of saying, that practically wages have not risen at all; for as wages advanced everything else advanced in price,—your food, clothing, house-rents, ay, and your social entertainment too,—and in the very nature of things it cannot be otherwise, if you deal fairly and honestly towards your brother tradesmen. If you apply for and get an advance of 10 per cent. on your wages, you must admit that the mason, slater, plumber, the unskilled labourer, and every other branch connected with the building trade, have as good a claim to an advance of 10 per cent. as you have, and will get it, too; and when got all round it is just equivalent to 10 per cent. on the cost of the building, 10 per cent. on the house-rent; so that the house that formerly cost 1,000*l.* will now cost 1,100*l.*, and the rent that was formerly 10*l.* will now be 11*l.* Then come in their turn the tailor, the shoemaker, and the baker, who inhabit the houses you have erected. These having to pay 10 per cent. more for the commodity you have furnished to them, very naturally look for 10 per cent. more on the commodity which they furnish to you. An agitation is set afloat, and, if need be, you aid them by your contributions until they attain their end. The same thing goes on until every occupation in the community has got its 10 per cent. advance. Then you are where you were when you began, and ready to start afresh. You are now getting 10 per cent. more wages and paying 10 per cent. more for everything you require, so that practically wages have not risen at all. I have no doubt that some of you will be concluding that is a false view of the question, that the advance affects only the labour, not the material part of the building. This reminds me of a discussion that took place between a trade-unionist and an employer when wages were being raised from 18s. to 20s. per week. The employer was cautioning the trade-unionist against raising wages to the injury of trade. "No, Sir," replied the unionist, "you will never injuriously affect trade by raising wages so long as you give us cheap materials, the labour being a small sum compared to the materials of a building." Now, this is a question that is very imperfectly understood, because few give it any consideration. I have sometimes heard asked what would be the value of the materials apart from the labour of a building that costs 1,000*l.*? I have heard various answers to the question, some as high as 800*l.*, and some as low as 500*l.*; but I can assure you that if the question be thoroughly investigated, it will be found that the raw material of such a building apart from the labour is not worth 30*l.* While on the wage question, let us take a retrospective glance at what you have accomplished during the last thirty-five years. You have succeeded in nearly doubling your wages, and in the cause have spent large sums of money. You have fought many a noble battle, and gained many a glorious victory; but against whom have you fought, over whom have you gained these victories? If you take a broad and comprehensive view of the question, you will come to see that in almost every instance you have fought against your own shadows, and gained the victory over yourselves. What would it matter to your employers though your wages were double to-morrow? It would only affect them so far as they had contracts taken for the present. Beyond that, they would recoup themselves from the proprietors for whom they erect the houses, and the proprietors in turn would recoup themselves from those of you who inhabit the houses, and the result would be, as it has been in the past, that in about two years almost every occupation would be as highly paid as yourselves. This is neither the time, nor is this the place, to dwell on the injurious effect such a result would have on the country. Suffice it to say for the present, that if those of you who are taking an active part in the trade movements of the day were impartially to investigate and thoroughly understand such questions, and assist your fellow-workmen to understand them, you would not only expel from your minds that phantom breach between capital and labour that only exists in the imagination, but you would do much to maintain the prosperity of the country, to establish good feeling between employers and employed, and hasten on that good time coming, when

> "Man to man, the world o'er,
> Shall brithers be, for a' that."

## COAL AND ITS COLLATERALS.

THE price and scarcity of coal are not only causing much suffering to the poor and inconvenience to every one, but are also interfering with business, and destroying the prestige of the country as the work-house of the world; and there are strong feelings on the subject generally abroad. The large steamship companies are laying up their vessels, mills are stopped, and contracts are seriously interfered with. And yet there is not only an abundance of coal in the earth throughout the country, but there are enormous supplies already "won."

The quantity of coal at present stored in Liverpool is far larger than was anticipated. The great depôts in Crown-street are full to overflowing, and the stocks are gradually increasing. The amount of steam-coal stored in bulk and in wagons on both sides of the Mersey is enormous, the quantity at Birkenhead being estimated at about 100,000 tons; whilst that in Liverpool is probably 100,000 more. This is apart from the stores for domestic use. The output of coal from many of the collieries situate between Wigan, Rainford, Skelmersdale, and Liverpool is quite as large as heretofore; there is no diminution whatever in the "cuttings"; and the quantities at the pits' mouths are so large that extensive wooden structures have been erected for storing the surplus coal! It is becoming a very serious question whether many manufacturers will not be compelled to close their establishments, the present cost of coal making it impossible to work them at a profit. North Wales and Lancashire coals are difficult to obtain in any qualities. The price of the former is 24s. at Birkenhead, and the latter 24s. 8d. in Liverpool. A rise of 2s. to 3s. per ton is expected in the course of a few days. The exports of coal during the month of January were:—From the northern ports, 347,913 tons; Yorkshire ports, 42,183 tons; London, 2,686 tons; Liverpool, 48,031 tons; Severn ports, 277,034 tons; and Scotch ports, 28,923 tons; making a total of 749,034 tons; and which shows a decrease, when compared with the corresponding month of last year, of 28,190 tons.

It is said that the price of coal, like the price of any other commodity, is regulated and governed, not so much by the cost of production as by the inexorable law of supply and demand; but that law does not apply to coal in respect of supply, because the stock is for the present inexhaustible. The scarcity is not by the visitation of God, nor is it the act of Providence: there is coal enough in the mines; the idleness of the men is part of the reason of scarcity, but high wages would soon overcome that difficulty. Co-operation of an underhand and impolitic kind amongst coal-masters and merchants is a far more formidable cause of the high price.

When coal-owners resolve to tax the nation by millions, purely for their own benefit, it compels every one to ask why should they be allowed to levy this black-mail? Property exists for the common good, and when property becomes a public evil, and the welfare and existence of the many are painfully affected by the conduct of the owners, it cannot be expected that the people will quietly submit to be ruined or killed, while gigantic fortunes are being made by a few selfish proprietors.

The prices of iron are still rising, and the dearness of coal affords the iron-masters too good an excuse for almost any price, or for putting out their furnaces altogether. The iron-workers at Merthyr, in turn, determine not to return to work on the 10 per cent. reduction. Everything, in short, is "out of joint." Sir Rowland Stephenson tells the men that there is no chance of their obtaining better terms from the masters than those offered.

## WILD ESTIMATING.

TERRIBLE differences in the price named by different contractors for the same work are still constantly observable, notwithstanding all that has been said on the subject. Confining ourselves to our last and present numbers, several extraordinary examples present themselves. Thus, for a chapel in Peckham Rye, while Mr. Ray proposes to execute it for 2,249*l.*, Mr. Munday will be glad to do the job for 1,080*l.*; and for the erection of schools for the Middlesbrough School Board, Mr. Adamson tenders at the sum of 8,785*l.*, and Messrs. Bulmer & Co. at 3,884*l.* For sewerage works at Barrow-in-Furness, Messrs. Bulmer ask 14,000*l.*, and Mr. Ritson offers to execute the same works for 6,698*l.*; while, more striking than all, in the case of roads and paths required at West-hill, Hastings, Mr. Kempling names as his price, 1,693*l.*, though Mr. T. Gardner will be delighted to form them, in just the same manner and under precisely the same conditions, for 673*l.* Truly trade is still a mystery.

**Henley-on-Thames Bridge.**—On Saturday last, the 1st inst., at noon, the toll-gate and barriers on the bridge at Henley-on-Thames were cleared away. It is now free from toll. The bridge is now the property of the Corporation of Henley, who will in future keep it in repair from funds in their hands for that purpose.

## OLD HOUSE PLANNING.

In these days of feverish architecture and hurry, and of so much that is inartistic, it is not a little soothing to turn to those old ways of work which produced, however slowly and unscientifically, the ingenious works which nowadays all alike strive to copy and compete with. If the birth of a style is a something curious to think upon and to try to explain, then is the death of one not the less so. Why should a good and expressive style of architecture die out? And then again, after a style is dead, as the Gothic, there would seem always to be such an unwillingness in the minds of men to give it up, and abandon it, and to take to the new and the untried. Who can imagine old London? A complete street, not a single house, here and there in a mile's walk, but a whole street of gable-ends, and projecting windows, and odd out-of-the-way bits of detail, and quaint carving, and doorways under which one could stand out of the wet for half an hour, with a something to look at all the time on the opposite side of the way! Who, we say, can imagine this? Not the keenest lover of Gothic forms and ornaments. And then once more when you got inside the house, how full of queer-looking and out-of-the-way "curiosities of architecture," quaint rooms, and large cupboards, and staircases not to be designed on paper at all; for to think them out you must construct them in reality, and in material, and almost put them together yourself, as in model-making. But these things are of the past, perhaps never in any way, certainly not in the same way, to return. They are for the most part unfortunately nearly all destroyed, and even the few, the very few, that are left wait only for a little notice and improvement to disappear too,—like ghosts of houses. But still, there are a few yet left, and, what is perhaps stranger, there are houses in parts of London wherein the old spirit has been at work up to more recent times. We refer to those houses which were built in the last century, and even in the commencement of this. One might almost call them Christopher Wren houses, and their architecture Wren architecture. We happen to know of a number of them in out of-the-way parts of London,—in the East-end of it and in the Borough. A glance at them may not come amiss, and may interest an architectural thinker here and there.

It is noticeable how much contrivance and ingenuity may be introduced even into a common house; and how it is possible to create an interest in the mere planning of stairs, and the disposal of rooms on different levels, and in unexpected places.

In ordinary house-planning of to-day you know all about it before entering, and after seeing one house, you know that the next door must be just like it; but here it is not so. This house is curious to go over, but so is the next door to it, for it is differently arranged. May not the great secret of a new architecture in the future spring after all out of common house building, and from the fact of differences in each individual house? Not in all being alike, but all different; each house showing individuality of treatment, and consequent expression in some sort human. Indeed, one cannot but see what a field there is here for architectural thought, architectural quaintnesses, and "architecturesque" curiosities. In the most recent of modern street building, the whole row of houses, at times a quarter of a mile long, the whole row, as in Portland Town, Palmerston Town, and in the new outskirts of the metropolis, are simply like long boxes divided internally into separate sections: their very merit seeming to consist in their absolute uniformity, and utter sameness. Surely this cannot be thought "progress," still less architectural progress; and yet is this that to which the mechanical architecture or building of the day is perpetually tending. Square blocks of buildings, straight streets, uniformly level houses, all of the same size and pattern and materials, and ornament! May we not here ask whether or no such a system of house architecture has the best possible effect on the popular mind of a country? A very curious and instructive subject here opens upon us. Is the house a man lives in entirely inoperate upon him as a mental lesson. Day after day, year after year, he sees the same nothingness—the work not of the thinking architect, but the dull production of the toolmaker, and the stupid forms of the common house-builder. These have supplied him with all that he sees, and can know personally of architecture. We have many a time thought of this, and the problem has presented itself to us in several ways. Going down one of those modern "improved" streets,—two long, straight, brick boxes opposite each other, with long holes for windows and doors, without variety or interest of any possible kind,—why the mind must of necessity be utterly vacant and empty as far as art is concerned. No memories, no associations, no inspirations, no thoughts of any kind—a true "lack-lustre landscape,"—a mere prospect of utter stupidity!

But now take an ancient street from almost anywhere,—a street out of old London will do,—and say, in spite of all shortcomings, whether interest in such, of an artistic kind, is not to be found. Such a street as those yet to be seen in Continental towns,—Rouen, or Nuremberg,—presents a constant succession of quaint ideas, and architectural thoughts. There is evidence in each successive house of the mind, if not the hand, of a thoughtful artist.

You know that the house you are looking at is not like the one you have left, nor the one you are coming to. There is something new to be seen at every turn—a fresh object for the eye and mind. Is this nothing, therefore, to the general public who live in the streets? An inhabitant in the old days, whatever his shortcomings and prejudices, must have found "education" in the open streets. He must have learnt a something of architecture and fine art even in spite of himself! Can we do this in improved London?

## THE NEW WANDSWORTH AND FULHAM BRIDGE.

The new bridge across the Thames between Wandsworth and Fulham, which was commenced about two years ago, is now on the eve of completion, the girders for the fourth span having been raised to their places on the river piers last week, leaving only the girders for the fifth span, connecting the bridge with the Middlesex shore at Fulham, to be fixed, and it is expected that this will be effected in the course of about a fortnight. The extreme length of the bridge from its commencement on the Surrey side of the river, between the old Wandsworth Pier and Messrs. Watney's distillery, to the Middlesex shore, is about 1,500 ft., including the approaches from the Surrey and Middlesex sides respectively. The approaches on the Surrey side consist of five brick arches of 20 ft. span each, and another span of 20 ft. carried by girders over the roadway to Messrs. Watney's distillery; and in addition to these arches, the approach is carried for a distance of 280 ft. by a solid bank. On the Middlesex side the approach is by an embankment 420 ft. in length, and a brick arch of 30 ft. span adjoining the bridge itself. This portion of the works, on both sides of the river, is already almost entirely finished. The approaches on the Surrey side are connected with York-road, Battersea, by an easy gradient, whilst on the Fulham side the approaches communicate with the King's-road, near Broomhouse-lane, and when completed and opened the new bridge will directly connect the Wandsworth and Battersea districts with those of Fulham, Chelsea, and Kensington, on the opposite shore. The bridge stretches across the river by five spans, supported by four river piers formed of wrought-iron cylinders, and shore abutment piers on each side of the river of massive red brickwork and masonry. The shore spans are each 113 ft. 6 in. in length, whilst the three spans in the stream are 133 ft. in length each. The cylinder piers in the river are 7 ft. 6 in. in diameter, each pier consisting of two cylinders connected transversely under the platform of the bridge. The cylinders are sunk to a depth of 14 ft. into the clay, and rest upon a thick bed of concrete placed under them, the cylinders themselves being also filled in with that material. The centre of the bridge has a clear headway of 20 ft. above high-water level, whilst the height at the shore abutments is 14 ft. The main girders on each side of the bridge, which are of the lattice pattern, are 12 ft. in height, and continuous throughout by being connected at the ends, the main girders being again connected by cross girders placed 4 ft. apart throughout the entire length of the bridge, and riveted to the upper side of the bottom flanges of the main girders. The roadway over the bridge is formed by timbers laid diagonally upon the surface of the cross girders, a longitudinal decking being again laid over these, upon which is macadamised paving. The entire width of the bridge between the main side girders is 30 ft., 18 ft. of which forms the carriage-way, with footways on either side 6 ft. in width.

In the erection of the bridge no particular attempt has been made to produce architectural effect, the structure being substantial rather than ornamental; but a pedestal over each pier carries a cluster of three lamps, and there is a foliated capital at the head of each column, or cylinder, on the underside of the main girders. The process of constructing the main girders is interesting. They have all been built up on a timber platform on the Surrey side of the river, parallel with the line of the bridge, and when finished a portion of the platform at each end is removed, and two barges, each fitted with raised stagings, are floated under the ends of the girder. As the tide rises, the girder is thus lifted, and then floated into position, and placed on its bearings upon the piers. The two remaining girders for the fifth span on the Middlesex shore are now in course of erection on the timber platform described, and, as we have already stated, will be raised and fixed in position in the course of about a fortnight, when the connexion between the two sides of the river will have been effected. The new bridge is about a mile to the eastward of the Putney and Fulham bridge. It has been erected from the designs of Mr. J. H. Tolme; Messrs. de Bergue & Co. were the contractors, the works being superintended by their engineer, Mr. Mallalieu. Mr. Bull, of Southampton, is the contractor for the approaches, and Mr. Nichols has acted as resident engineer during the progress of the works. It is expected that the bridge, including the laying and paving of the roadway, will be finally completed and opened for traffic about the end of April or early in May, and that one of its immediate results will be the laying out of the several acres of land in the locality, on the Fulham side of the river, for building purposes, the new bridge affording more direct access to Fulham from Wandsworth, Battersea, Clapham, and other neighbouring districts intersected by the several railways on the Surrey side than now exists.

## MARIENBURG CASTLE.

### GOTHIC *v.* CLASSIC.

It is not with the purpose of reviving a controversy which, if not dead, is slumbering, that we have given the above title to these notes; but the interest attaching to that ancient and unique remain, Marienburg Castle, has such a remarkable bearing upon many of the aspects of the controversy between Gothic and Classic architecture, that, should the old antagonism be again aroused,—as is not unlikely to be the case in the event of a general and open competition for an important public work,—a reference to these may not be without interest and service. It is probable that so long as the architectural art of England speaks only in dead languages,—which since the decadence of Gothic to Elizabethan or Renaissance forms of art, it has chiefly done,—as again in the revivals of Classic and Gothic art within the present century, such controversies will arise. They are not without their value, giving a zest to art-matters which prevents stagnation; but they are open to great objection when pushed to extremes, which range the advocates of different styles into hostile camps, begetting a sort of bigotry in art similar to that in religion, which can see no merit but in its own cherished mode. It is greatly to be regretted that when, by the fresh attention to and study of ancient Classic remains, a feeling for Classic art in its purest forms, and not as interpreted through the Renaissance, had so largely revived, that our architects did not carry it on, first by careful reproduction mastering its detail, till, becoming imbued with its spirit, its principles of proportion and beauty had again sprung to light and become plastic in their hands for adjustment to modern requirements. But ere the promise of such hopeful fruit was brought to perfection a Gothic revival set in, which has followed much the same course, without having very satisfactorily established superior claims in its modern adaptation as a style more suitable to the spirit and requirements of the age. Had there been a parallel development of each,—for which, in the *penchant* of our architects, there seemed abundant scope, it being very remarkable how, within the lines of each style, a special *forte* has often manifested

itself,—settled and dignified results might have accrued, for which, for the most part, we look in vain. Each style has now long had to contend with novelties introduced from all quarters, treated in the most bizarre manner, till our architecture has shown "all things by turns and nothing long," and in these heterogeneous changes, pure, noble art has had a very poor chance indeed. If it should be, as the history of modern art seems to indicate, that architecture *culminated* in its two chief forms of Grecian and Gothic, and their congeners, then architects would be worthily engaged in seeking to wring from them the secrets of their proportion and beauty, certainly not yet grasped by us, as principles for unfailing guidance and satisfying results, and their genius would be best seen in comprehensive and varied applications of these styles, rather than in efforts after originality and attractive novelty. Both styles can reach all the purposes of our present civilisation; neither need supplant the other; for no dispassionate mind, unwarped by a special bias, can doubt that both Grecian and Gothic forms of art are capable, in great fulness, of all the expression which sacred, secular, and domestic art requires, from the grandest impress of religious and public buildings down to the grace and homeliness of the villa and the cottage.

It is just in its exhibition of the most flexible adaptation to these varied ends that the architecture of Marienburg Castle forms such an interesting study for architects, challenging, as it does, upon almost all points, the allegations of the opposite school, that Gothic architecture, being a birth of the ecclesiastical and monkish spirit of the Middle Ages, is little in accord with the modern spirit, or subservient to present uses. A modicum of fact, however, is worth a large amount of argument, and we shall, therefore, so far briefly and generally describe the castle as to bring out the points in which it affords a vindication of Gothic architecture, not as *against* Classic, but as having claims to adaptability to all modern purposes.

Marienburg Castle owes its existence to the German knights, in the period of their sway during the thirteenth, fourteenth, and fifteenth centuries, it being their great stronghold and residence. It is by no means a single building, but a collection of buildings of the most varied character, including defences, palaces, churches, chapels, courts, offices, and private residences. Its architecture is somewhat of a Norman type; but if *this* more rigid, massive style than the later Gothic can hold its own in elastic adaptation for such varied purposes, then, *à fortiori*, the case of Gothic is the more strengthened as to its capability of meeting, by skilful treatment, all those problems as to light and arrangement in which, in its modern dress, it is alleged so conspicuously to fail. We need not dwell upon the *external* architecture of the castle otherwise than to say that it is of imposing character, showing great skill in its diversified aspects throughout the immense areas occupied by its various buildings, which make up an *ensemble* perhaps unsurpassed by any similar collection of edifices. It is with the *interior* that we have most to do, as remarkably suggesting the capabilities of Gothic. And here it may be said that the pointed arch and vaulted roof enter into endless combinations not only in the construction of buildings which may be called public, such as halls, chambers, &c., but by the easiest and most graceful transition from these to galleries, cabinets, offices, and apartments devoted to all the secular purposes of daily life, be it living, working, or sleeping; all yielding satisfaction in the perception of their appropriate character. Nowhere throughout do arch and pillar, vaulted roof, and mullioned window seem out of place. If it really merits the descriptions given of it, a monogram by a competent architect on this unique and remarkable remain,—still almost entire and little hurt by the ravages of time,—illustrated by drawings or photographs, would be a service done to English art, which could not but have its effect in moderating unaccountably prejudiced controversies as to opposite styles of art-development, which should be each in its mode hailed as but another form of beauty's dress, which man, as by an innate bent at certain stages of his history and culture, seeks to throw over his works, to educe in their way that sense of delight, thought, and emotion, which in its *abiding* impress is the test of every true work of art. All true art ever strikes these chords of a present and unwearied delight. In an eminent sense in architecture Grecian and Gothic forms have done this. They are not then antagonistic, but proofs of the contrasted working of the same innate principles of beauty, and as such should be revered and cultivated. J. H. B.

## SAVERNAKE COTTAGE HOSPITAL, WILTSHIRE.

ADVOCATING, as we earliest did, in the face of some opposition, the establishment of Cottage Hospitals, we have chronicled the progress of the movement and described the buildings erected in consequence with particular satisfaction. In our present number we add to the list illustrations of the new structure which has been erected, from the designs of Sir G. G. Scott, R.A., for one of the most successful of these institutions,—that of Savernake. It was established, about six years ago, by the Rev. J. O. Stephens, vicar of Savernake, for the use and benefit of the surrounding neighbourhood, including Marlborough, Ramsbury, Burbage, Great and Little Bedwyn, &c. The building used for the hospital was that known as the "Institution," on the borders of Savernake Forest, near the London-hill gate, the use of which was granted by Lord Ailesbury, and it was furnished by Lady Ailesbury. In 1870, however, it was found too small to meet the constant applications for admittance, and endeavours were made which have resulted in the building we have illustrated. Lord Ailesbury gave a site near the original building and the sum of 1,000*l.*, and Lady Ailesbury gave 300*l.*

The gardens are rather extensive, and are tastefully laid out. At the entrance-gate is a one-storied porter's lodge, erected at a cost of 300*l.* from a portion of the profits of a fancy fair. The style of the hospital is domestic Gothic, the timbers over the entrance being picked out and painted oak; the exterior walls are of red brick, built hollow, and the gabled roof covered with ornamental tiles. A brass plate will be placed in the lobby with the words, "This Hospital, built by public subscription, was opened on the 22nd day of May, 1872. The foundation-stone was laid by the Marchioness of Ailesbury, April 12th, 1871." The entrance and staircase hall lead on the one side to the men's, on the other to the women's, ward; each of these apartments is 32 ft. by 20 ft., and lofty in height, the building being at the wing but one story. They are lighted by two large bay windows, placed sufficiently low to enable patients to see out of them as they lie in bed. The gabled end has also a six-light transomed window. The floors are laid with oak parquetrie, and the walls plastered with Parian cement. Sheringham's patent ventilators have been adopted, communicating by a shaft with the flue. Attached to each ward are bath-rooms and lavatories, with hot and cold water laid on. Moule's patent earth-closets are adopted throughout the building. Between the wards are two convalescent rooms, the expense of erecting and furnishing which was exclusively borne by Lady Ailesbury; the lower (for the male patients) is to be used as a board-room on Monday mornings. The "Operating-room" is lighted by a skylight above, and situate behind the men's ward. From the women's we pass to the matron's room, and then to two fever wards for isolating special cases. These are built and furnished by Mrs. Baverstock Merriman, in memory of her late husband, as the following inscription on a brass plate between the two will testify:—

"In Memoriam
Thomæ Baverstock Merriman
Duo Hæc Cubicula
Adstruenda Curavit
Vidua Mœrens.
S.E.M.
1872."

These wards in walls, floor, and ventilation, are similar to the others, and contain two beds each. The kitchen, scullery, laundry, and wash-house are kept distinct, but on the same level. A close range in the former apartment supplies hot water by means of pipes throughout the building; the laundry is provided with a drying apparatus heated by a circulating stove, and the wash-house with permanent troughs. The outbuildings include a mortuary and stabling. The walls are coloured with neutral tints, those other than the wards being painted and varnished to the height of 4 ft., and then distempered a pale green. All the external woodwork is stained and varnished.

The cost, including furnishing, laying out the grounds, sinking a very deep well (250 ft.), and building a porter's lodge, has been nearly 5,000*l.*, all raised by public subscription and at a fancy fair held at Savernake last year.

It will accommodate twenty beds, and is intended for the use of nearly sixty parishes situated in North Wilts and South Berks. It is maintained by public subscription at a cost of 550*l.* per annum.

The contractors were Messrs. Roberts, of Islington. Mr. Wheeler was the clerk of the works.

## LONDON STREET ARCHITECTURE: Nos. 36 & 37, PICCADILLY.

IN a former number * we noticed at some length the picturesque and original building that was then being erected at the corner of Swallow-street, Piccadilly, for Mr. Sotheran, from the designs of Messrs. George & Vaughan. We give a view of the premises which have since been completed, the work having been carried out in a thorough manner, even to the shop-fittings. In the place of the usual mezzanine is a gallery round the shop, supported on oak posts, to which the revolving bookcases are hung. The whole of the fittings through the two stories are of oak, as is also the double staircase to the gallery, with its handsome carved newels. We have before noticed the arrangement of mural glass panels in the elevation representing the history of book-making, also the effective recess forming a loggia to the drawing-room on the upper story.

The elevation is of Portland stone. Within the arches of the loggia are carved life-size busts of Shakspeare, Newton, and Michelangelo, as representing Literature, Science, and Art. The series of pictures in Powell's mosaic glass comprises:—

1. Egyptians inscribing hieroglyphics on a sarcophagus.
2. King Alfred being presented by his mother with a manuscript.
3. Monks copying manuscripts.
4. The dream of Guttenberg.
5. Caxton reading the first proof of the Canterbury Tales.

The long panel under the loggia is divided into three pictures, representing etching, lithography, and wood-engraving. The figures are about 2 ft. high. These cartoons were drawn by Mr. Henry Burrow.

The building, including fittings, has cost about 10,000*l.* It was erected out by Messrs. Hollands & Hannen; Mr. Ville acting as foreman.

The adjoining house, No. 37, was also reviewed in our previous article. This building has been erected for the former proprietor, Mr. Addley Bourne, by Messrs. John Perry & Co., builders, of Tredegar Works, Bow, from the plans and under the superintendence of Mr. Edgar Leuchars, architect. The building consists of basement, shop, and show-room, with four stories over the former, the latter being in the rear, and having a carved ceiling and skylights. The narrowness of the frontage rendered it inadvisable to sacrifice any of the show-window for a private entrance while the shop was open. An ingenious arrangement has therefore been adopted by which the front portion of the partition which separates the shop from the stairs is hinged, and turns on a tram-plate, so as to form, in conjunction with the shop-door, also opening back, an entrance-lobby, when the shop is closed. The street-door then, in two folds, is fitted into the shifting pilasters of the revolving shutters of the shop-front.

The shop is separated from the show-room by an ornamental polished brass screen, about 7 ft. high, with curtains and *portières* attached to it. Both shop and show-room are heated by hot-water pipes, and are fitted with Pott's ventilating cornice.

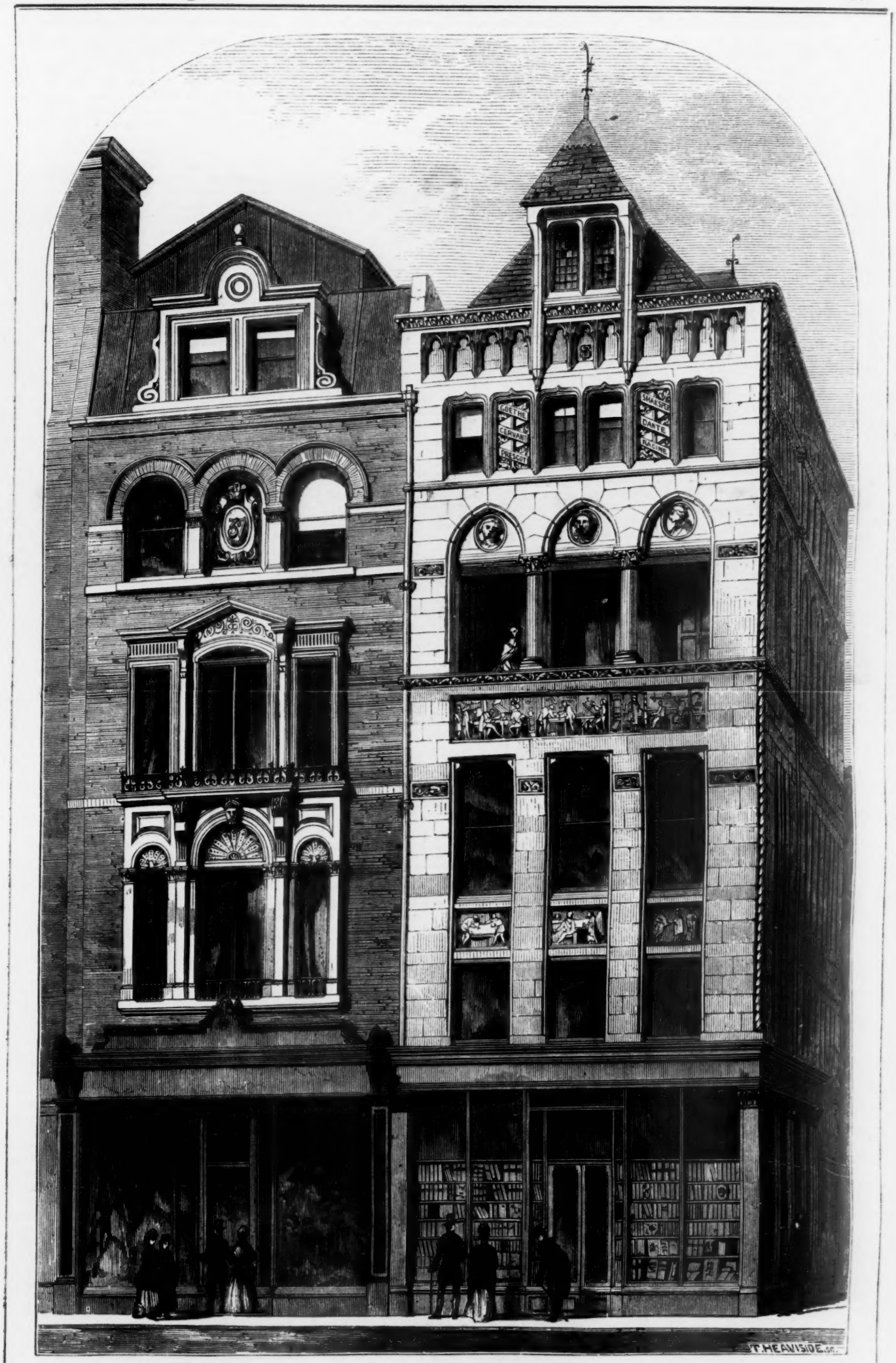
The basement, except kitchen and sitting-room, is paved with Val de Travers asphalte. The upper part of the building, being required as a residence for Mr. Bourne, and also for his assistants, a separate back staircase has been provided from the basement up to the third floor.

The front is faced with gauged white Suffolk bricks, with dressings of Portland stone. The pilasters of the shop-front are of polished Irish black marble, lightly incised and gilt. The total cost was about 4,000*l.*

**Norwich.**—Mr. Christopher Thwaites, C.E., son of the late Chairman of the Metropolitan Board of Works, has been elected to the office of city engineer and surveyor for Norwich.

* Vol. xxx., p. 498.

SAVERNAKE COTTAGE HOSPITAL, WILTSHIRE.—SIR G. G. SCOTT, R.A., ARCHITECT.




No. 37. MR. EDGAR LEUCHARS, ARCHITECT. **A PIECE OF PICCADILLY.** No. 36. MESSRS. GEORGE & VAUGHAN, ARCHITECTS.

## CAMBERWELL NEW VESTRY-HALL.

THE new buildings at the corner of High-street, Peckham-road, for the Camberwell vestry, which have been in course of erection since the spring of last year (and of which we gave an illustration and a short notice in April last), are now so far completed that a portion of them will be opened for business about Lady-day, or in the course of a month from the present time. The building externally is already finished, and the interior is also far advanced towards completion.

The Peckham-road elevation is entirely of Bath stone, with the exception of a number of sculptured figures and vases, which materially heighten the architectural appearance of the building. This elevation is 77 ft. in width, and 37 ft. in height to the cornice, above which is an ornamental balustrade, making the entire height of the elevation about 40 ft.

The interior of the building, now in progress, contains several suites of apartments for its intended purpose, in addition to a spacious and commodious Board-room, which is being decorated. The building is approached by a flight of nine steps through the principal entrance, leading into a vestibule and hall, 20 ft. in width by 34 ft. in length.

It is expected that the whole of the ground-floor of the new building will be occupied by the several departments for whom they are intended in the course of next month, but the Board-room will not be finished and ready for the vestry to hold their meetings there before the ensuing summer.

Although the cost of the building was originally estimated at 8,000*l.*, several extras have since been decided upon, and it is now understood that the structure, when finished, will involve an expenditure of not less than 10,000*l.* to 11,000*l.* Messrs. D. King & Sons are the contractors, and Mr. Goodwin is the clerk of works.

## THE REPRODUCTION OF DRAWINGS BY THE REDUCTION OF SILVER SALTS.

IT is well known that all salts of the oxide of silver, when impregnating paper, calico, linen, &c., are reduced by copper, hydrogen, and phosphorus vapour; while the haloidal salts, such as the chloride, cyanide, &c., are not so reduced at ordinary temperatures. Acting on this, M. Renault has devised a process which *Iron* thus describes:—

"If, then, a drawing or an engraving is placed on a sheet of pasteboard which has for some time previously been exposed to hydrochloric acid vapours, and above the design a leaf of sensitised paper is laid, the acid vapours filtering through the drawing transform the salt of the oxide of silver in the sensitive paper into chloride, except in those places where the passage of the gas is stopped by the carbon lines of the design. The sensitised leaf, if then laid on a sheet of copper, reproduces the original drawing or engraving, the salt of the oxide of silver being reduced where it has escaped the acid vapours. Each stroke of the design is ineffaceable, being not only on the surface of the paper, but carried through its entire thickness, even reappearing on the other side, when the sensitive paper is allowed to remain a sufficient length of time in contact with the copper plate. In place of using a sheet of copper to develope the image, hydrogen, or phosphorus vapour mingled with carbolic acid, may be used; in this case the image appears immediately the paper comes in contact with the gas. The sensitive paper, after development of the drawing, is washed with a dilute solution of binoxalate of potassa, the design being subsequently fixed by immersion in a solution of hyposulphite of soda and salt. Facsimiles of all kinds of manuscripts, drawings, and prints can be made by this process."

## NEW NORTH-EASTERN STATION, MIDDLESBROUGH.

THE plans—prepared by Mr. Cudworth, the engineer of the company, and Mr. Peachey, of Darlington, their architect for the Darlington Section,—have been to a certain extent completed. The site selected for the new station is to the west of the present one—that is, towards the Exchange. Architecturally, the station will be constructed on Gothic principles, with a spacious porch in front. It will have platforms on each side. Each of the main platforms will be 720 ft. in length. There will also be a spacious excursion platform a little further west, of about the same length; and there will be separate offices for booking and accommodating excursionists. There will be two entrances to the station—one approaching from Zetland-road, a little to the east of the present entrance, and the other leading off Bridge-street West, on the other side. A subway, to be constructed beneath the station, will give direct communication between the two platforms. Access to this subway will be gained on the Zetland-road side of the station by a flight of steps abutting on the platform, while on the other side passengers can either pass through the subway to the other platform or to the street. The offices and waiting-rooms will be lofty, spacious, and well ventilated. The entire width of the station within the walls will be 120 ft., and the roof will be constructed, chiefly of glass, in three bays. Between the platforms there will be three lines of rails.

Several collateral improvements of considerable importance are embraced in the new scheme.

The cost of carrying out these alterations, including the building of the new station, is approximately stated at from 100,000*l.* to 150,000*l.* This large expenditure will be about doubled by the North-Eastern Company's outlay of a somewhat similar sum towards the extension of the docks.

## ON CORPORATION LANDS.

A PAPER "On Lands held by Corporations, and on the Policy either of their Alienation, or of Providing for their Management, with regard to Public Utility," by Mr. Thomas Hare, has been read before the Social Science Association. In the course of his address Mr. Hare said,—

"I suppose we shall not know, until the completion of the new Domesday Book, suggested by Lord Derby, how large a portion of England and Wales is vested in corporate and other trustees for public uses, or permanent uses adopted and sanctioned as for the public benefit. I look upon the collection of statistics which shall enable all this portion of the surface of the kingdom to be distinguished on our county maps from that which is private property, as a measure of the utmost importance. As to the extent of the public portion, there are extensive estates under the control of the Woods and Forests, and dedicated to religious, municipal, educational, and charitable uses of every kind. For example, five London charities alone have 43,000 acres of land, and some thousands of houses. There are lands in nearly every county in England under the control of the Ecclesiastical Commissioners, and in most counties other lands belonging to the colleges of Oxford and Cambridge. With regard to all these lands, the subject before us is whether, having regard as well to the furtherance of the objects for which the State has permitted them to be devoted, as to the benefit of the nation at large, it is better that they should be sold, or retained? And, supposing them to be retained, whether they may not be subjected to a system of management and publicity by which they might become of incalculable public value?"

Mr. Hare assumed it to be a matter of the most unquestionable policy, that, without disturbing any existing rights, every facility should be afforded for enabling as many of the people as the nature of their various industries and employments, and the circumstances of society, will allow, to acquire some interest in the soil or surface of the country in which they dwell. How this can be most effectually done, he considered, is worthy of the study of our legislators.

"Assuming that the creation of derivate interests for life, or for a term of years, be sufficient for economical development of the productive results of all the capital and labour that can beneficially be employed upon the land, and that, so far as relates to these estates, the claims of industry will be satisfied, it is at once seen that all the land of which we are speaking,—the real estates, the produce of which is dedicated to permanent uses,—form the basis of a system of land administration which would go far to fulfil all the political and economical objects which are to be desired, accomplishing at the same time every purpose of the endowment; the income, whether municipal, charitable, educational, or ecclesiastical, being made as great as it can be made by an enlightened, and even competitive, tenancy. This has been proposed to be effected by consolidating in every district in the country the stewardship or agency of these estates within the district. Thus, for a district of say two or three square miles, in the metropolis, or other places covered with habitations, and of 200 or 300 square miles in the country, on either of which districts perhaps fifty or a hundred different agents are employed by as many bodies of governors or trustees, let there be one agent, with a central office. In this office every applicant might ascertain what public lands exist in the district, under what leases or terms they are occupied and on what conditions, and of what and when any new letting is to take place. We should then establish in every district a market, as it might be called, in which the marketable value of the occupation of all the public lands would be ascertained."

He could not see how we could have better security than this would give for the fulfilment of the economical objects of such possession.

A discussion followed the reading of the paper, in which Mr. Hare's views were very favourably regarded.

**Brompton Hospital for Consumption.**—A further step has been taken towards increasing the hospital accommodation. Six more houses opposite have been purchased, and two of them have been fitted up and furnished as a "South Branch." This auxiliary accommodates seventeen additional male patients, and is now full.

## ARCHITECTS' ASSISTANTS.

SIR,—I quite agree with "Provincial Architect" that leading architects ought to make higher charges than those struggling into practice, and it would throw a vast amount of work on other hands, to the pecuniary benefit of the profession generally; but I do not think we shall ever benefit our position until pupils are *taught*, and not left to pick up what they can by doing the office work, and as soon as they become a little useful, the assistant is informed that "after that day week or month (as the case may be), his services will not be required," making him a migratory subject, wandering about from office to office, so that the little he does earn becomes very small indeed when brought to an average;—25*s.* to 2*l.* per week (and sometimes less) is decidedly not enough in these times for a man who has perhaps served five years under articles, and been assistant for some time as well, and yet one must really be a genius to get more. We are *not* all genii! and many of us have not the remotest chance of a practice; but we surely ought to be paid enough to live on, without (unless having private property) being obliged to take a vow of celibacy (*vide* advertisement weekly in your paper).

Another great evil is that architecture is not a *recognised* profession, and anybody without the slightest idea on the subject may set up as an architect, thereby lowering us all socially and professionally. I can give you an instance. In a large provincial town, among several architects, one had been a carpenter, who, having nothing to do, set up as an architect and surveyor; another was a *journeyman* bricklayer; and I could mention other similar instances.

Heaven forbid we should lower ourselves to unions, unless it be for the purpose of not going in for those scandalous 5*l.* competitions.

Some of my remarks are borne out by "Prodigious" in your Number of March 19th, 1870.

ASSISTANT.

## PRIVATE AGRICULTURAL RAILWAYS.

UNDER this title Mr. Richard B. Grantham read a paper at the ordinary general meeting of the Institution of Surveyors, on February 24th, in which he considered the subject under the following heads:—

I. The purposes for and extent to which railways can be made useful in promoting the interests of agriculture.

II. The probability of their making a profitable return for the outlay.

III. The best mode of constructing and working them.

IV. The nature of the country to which they are applicable.

V. The present state of the law relating to their adoption.

In conclusion, he laid before the meeting a description of the agricultural railway which the Duke of Buckingham and Chandos has constructed through his estate at Wotton, near Aylesbury.

The line passes through the estate of the Duke at Wotton, which is about eleven miles on the west side of Aylesbury, and about the same distance south-east from Bicester, those being the two nearest market towns by the roads. The line, which is of the same gauge, 4 ft. 8½ in., as the main line, commences on the Aylesbury and Buckingham Railway at Quainton Station, about five miles from Aylesbury, and twelve miles from Buckingham. The line is altogether 8 miles in length; of this 6¾ miles are direct line, and 1¼ mile a branch to a farm, whence it is capable of being extended further into the estate. In this distance the line crosses three public roads, and one turnpike-road on the level, for which formal permission was given.

The main line was commenced in September, 1870, was opened to Wotton in April, 1871, and was completed for use in November of that year. The branch was completed in August, 1872.

The cost of the Wotton Railways has been under 1,400*l.* per mile, exclusive of land, or 11,200*l.* in all, but including goods and engine sheds; but only some 6,600*l.* of the sum was borrowed: the remainder was paid by the duke himself. The working expenses have been estimated at 650*l.* per annum, and the annual interest and repayment of loan of the 6,600*l.* is about 460*l.*, making 1,110*l.* as the annual charge, to which should be added the interest on the outlay on the difference between the total cost and the loan.

His Grace places a percentage rate, as the probable value of the improvement, which in the whole amounts to 350*l.*; and he also estimates that coal, road stone, and timber would produce 200*l.* a year more, making 550*l.*, which more than covers the repayment of the loan and interest. Since the line has been opened, other sources of traffic have sprung up, which have doubled the agricultural value of the estate, and there is no doubt whatever that the traffic will be developed in the course of a short time to a much larger extent than I have shown.

The Duke has frequently expressed to me his expectation that this line will afford an example of the benefit estates will derive from railways of this and similar kinds where they can be introduced; and he quoted an instance in the sale of bark, in which he was limited in his market to the neighbouring towns; but since the railway was opened, he could send to any distance, as buyers came and gave him a large increase on his former prices. A corresponding increase may be expected in the sale of timber, and so forth.

The engines at present in use are two of Aveling & Porter's, which are similar to those employed as road-rollers, with chain couplings; but I should prefer the ordinary locomotive light pattern, with four wheels coupled.

My connexion with this railway was as inspector under the Inclosure Commissioners. I had to decide upon the lines which should be adopted, and I had frequent opportunities of seeing the work. His Grace employed Messrs. Lawford & Haughton to take the surveys and levels, and procure the rails and timber, but the Duke himself personally superintended the execution of the works.

## A PIECE OF CHALK.

IN a recent lecture on this subject, Dr. Carpenter, after considering the position of chalk in the series of stratified deposits, said, what is chalk? and thus answered the question:—It was long ago shown by the celebrated microscopist, Professor Ehrenburg, to be chiefly composed of an aggregation, either of very minute shells, or of the fragmentary remains of very minute shells, belonging to the group now called Foraminifera; by far the greatest proportion being of the one type which we call Globigerina. Hundreds of them would only weigh a grain. What is the nature of the animal? It is a little lump, or rather a series of lumps of jelly, with no mouth, no stomach, no anything, except that it can send out long threads, the minuteness of which is hardly conceivable to you. These threads, which are not the ten-thousandth of an inch in diameter, go out in clusters; they diffuse themselves through the water, lay hold of particles still minuter than themselves, and then draw these particles back. I have sometimes described them as a sort of animated spider's web. The central mass is always sending out some of these threads, while other threads are being drawn back into it; and in this manner, without any distinct mouth or stomach, the nutrient particles are constantly being drawn in, and the animal is thus supplied with food. Now, when I tell you that there probably is a far greater quantity of this life at present existing than of all other kinds of life put together, you will see what an important part these humble animals perform in the economy of nature. The whole bottom of the Atlantic, except where cold currents come down, is covered with these animals, and with masses of their decayed and broken shells. I cannot pretend to form an estimate of how much there can be; but you may form some idea of it when I tell you that, in dredging the Atlantic, at one mile in depth, we brought up nearly half a ton at one time; and from nearly three miles depth we brought up one hundred weight and a half, besides our three miles line and a heavy dredge. Speaking of limestones, he said geologists have come to the general conclusion that all the lime of which they are composed has at one time or another formed parts of the skeletons of animals; for we are not acquainted with any other natural agency which can withdraw lime from its solution in sea-water, and convert it into solid rock masses. I have shown you how Foraminiferal life does this, by producing that immense aggregation of minute shells which we call chalk; and corals also are doing the same thing on an enormous scale: whilst Eclimoderms and Mollusks also contribute, their shells forming enormous beds in particular localities.

## GARDEN DRAINAGE AND OTHER IMPROVEMENTS.

IN the Vice-Chancellors' Courts, Lincoln's Inn, on February 20th, before Vice-Chancellor Sir R. Malins, the case of Broad *v.* Huxley was tried.

The plaintiff in this suit is a retired tradesman, residing at No. 12A, Blenheim-terrace, St. John's Wood, and letting a portion of his house in lodgings; and the defendant, Professor Huxley, is the owner of a house and garden to the rear of and adjoining on the south the plaintiff's house. Professor Huxley's premises are at a higher level than the plaintiff's house. The plaintiff's case was that certain improvements which the defendant commenced in November last, and which consisted in raising the general level of his garden so as to form a croquet-lawn, making an embankment at the rear of the plaintiff's house and planting it with trees, and draining the surface-water from his garden into a cess-pool, 22 ft. from the plaintiff's house, had had the effect of rendering the basement of his house so damp as to be uninhabitable, and of darkening the premises. The plaintiff's bill prayed for an injunction to restrain the defendant from draining his premises so as to cause injury to the plaintiff's house, from permitting the embankment to damage the plaintiff's party-wall, and from allowing the trees thereon to darken his premises. The case, which occupied the whole day, was, by consent, of the parties, heard as a motion for decree.

The Vice-Chancellor delivered an elaborate judgment, in which, after remarking upon the conciliatory disposition shown throughout by the defendant, he said that the onus of proving his case lay upon the plaintiff, and that he had entirely failed in so doing. The evidence satisfied his Honour that the plaintiff's house had for years been damp, and that the defendant had not made it damper; that the case as to the trees was preposterous, and as to the wall had no foundation. In dismissing the bill with costs, his Honour remarked that the plaintiff, the value of whose house was about 700*l.*, had persisted in a litigation which would probably cost him 500*l.*

## EDUCATION IN MELBOURNE.

SIR,—The new Education Act comes into force this day (January 1st). Its clauses render education in the colony compulsory, secular, and free.

For the proper carrying out of the intentions of the Legislature, a new department has been established, under the control of a Minister of Education, who is directly responsible to Parliament.

It has been decided that the colony is to be divided into school districts, in each of which the ratepayers can elect a Board of advice; to direct what use shall be made of the school buildings after school hours; to suspend any teacher for misconduct; to report on the condition and management of the schools, and to visit them from time to time; to use every endeavour to induce parents to send their children regularly to school, and to report the names of those who neglect to do so; and to recommend the grant of a scholarship to any child displaying unusual ability.

The compulsory clause of the Act is not of a very stringent character, as only sixty days in each half-year are provided for; and it is questionable whether so short a time will prove of any benefit to the neglected children of the colony. Parents neglecting to send their children for a period of sixty days in each half-year (unless they are being educated elsewhere, or are incapacitated from some valid cause) are to be punished by fine, or imprisonment for one week.

Secular instruction only is to be imparted in the State schools.

Free instruction is to be given to all children attending the State schools in reading, writing, arithmetic, grammar, geography, drill, and gymnastics, with the addition of sewing and needlework for girls; a certificate being given to each child educated in these subjects up to the standard required.

Teachers are to be paid by salary for teaching the branches specified, but fees are to be charged for extra subjects.

The Act also provides for the establishment of night schools.

The regulations under which the Act is to be administered are not yet made public, but as they are framed by the Minister of Education (the Hon. J. W. Stephen), who has the public confidence for his earnestness and ability in furthering the cause of education, it is certain that the regulations will be framed and carried out in a liberal and enlightened way, both as regards the teacher and the children taught.

*Melbourne.* S. H. R.

## DOCTORS DIFFER, SO DO MATHEMATICIANS.

REQUIRED the weight that would break a rectangular beam of Riga fir when applied at the middle of its length, the beam being supported at both ends. The length of the beam between the supports is 21 ft., its depth 14 in., and breadth 12 in.

Tredgold says, "Multiply the breadth in inches by the square of the depth in inches, divide the product by the length in feet, and the quotient multiplied by the tabular value of the constant C = 530

$$\text{and } \frac{12 \times 14 \times 14 \times 530}{21} = 59{,}360 \text{ lb.}$$

is the breaking weight."

Barlow says, "Multiply the tabular constant 1,108 by 4 times the depth in inches, and by the area of the section in inches, and divide the product by the distance between the supports in inches, and the quotient will be the breaking weight.

$$\frac{1108 \times 4 \times 14 \times 168}{252} = 41{,}365 \text{ lb.}"$$

It will be seen there is a difference in the two methods of calculation amounting to 17,995 lb., or 8 tons.

If there are these differences between the formulæ of authors on whom we ordinary mortals are taught to look as authorities, and to depend upon in our ordinary calculations, can it be surprising that "surveyors differ" also when giving evidence in our courts of law?

Probably some of your readers will be able to explain the above discrepancy; but it appears to me that if the experiments on the strength of timbers were made with larger pieces than from 1 in. to 3 in. thick, the results would be more reliable. T. T. G.

## THE PAVING OF SOUTH LONDON AND THE VESTRIES.

### CONFERENCE OF HOUSE OWNERS.

THE builders and house-owners of South London are complaining of the inconsistent and expensive character of the paving in the locality, by which they allege that they are put to an unfair cost in respect of the property which they hold. At a conference held last week to memorialise the Lambeth Vestry on the subject, it was stated that whilst some neighbourhoods were most extravagantly paved with materials quite unsuitable, others were altogether neglected. It was also stated that builders and owners of property, when required to make up and pave roads, had not the option of doing the work themselves, which they could in most instances do more cheaply; and that there was no opportunity for making suggestions of a local character in regard to the kind of pavement to be used, the consequence being that very often poor neighbourhoods were required to pay for the most expensive kinds of pavement, and *vice versâ*. It was suggested that streets should be classified, and pavements also, so that the owners of property in any particular locality would know at once for what kind of pavement they would be expected to pay. Prompt action in the matter was urged on the ground that the Lambeth Vestry have it in contemplation to borrow 10,000*l.* for the purpose of carrying out a scheme of uniformity in the outlying districts by the general adoption of tar paving. The owners of property in Camberwell also complain of the same grievance, alleging that some districts are over-paved whilst others are neglected, and recently they presented a memorial to the Camberwell Vestry against the proposal to pave Croxted-road and Acacia-road (a rural district in Dulwich) with stone in square sets. So strong is the feeling against this proposal in Dulwich, that Mr. Green, the largest owner of houses in the neighbourhood, has offered to incur the expense of keeping the paths in order rather than that the character of the neighbourhood should be destroyed; and the College authorities have also interposed in the matter, with a view of preventing the picturesque character of the neighbourhood from being affected by the kind of paving proposed.

## A BLIND BUILDER.

THE old village of Hampsthwaite, in Yorkshire, has recently lost one of its most interesting and worthy inhabitants, Peter Barker (Blind Peter), who died on Tuesday, in the sixty-fifth year of his age. Becoming blind through an attack of fever, when three years old, his prospects in life were not very hopeful; but through his energy of character and his natural abilities, he maintained himself in a respectable position. He was skilful in music, and, being possessed of a fine bass voice, he was very efficient in the psalmody of the parish church. With marvellous readiness, he, in his early days, embraced the business of a carpenter and cabinet-maker, undertaking many small building jobs, and executing them satisfactorily. His knowledge was acquired without serving as an apprentice or having any other instructions, but through his remarkable natural endowments. A lady who came to Hampsthwaite when he was fifty-three years old taught him to read the Bible by means of Moon's system of raised letters. With this "lamp to his feet," he traversed the Valley of the Shadow of Death, and so found peace.

## COTTAGE HOSPITALS.

*Ventnor (Isle of Wight).*—The report read at the annual meeting was a satisfactory one. The committee still plead for another benevolent person to build an adjoining house, when the hospital will consist of six complete pairs or blocks, containing in all over seventy patients, each of whom will have a separate sleeping-chamber. During the past year, and under the presidency of the Bishop of Winchester, the committee held a public dinner, and the contributions then received amounted to 2,300*l.* They are now endeavouring to obtain 2,500*l.* for furnishing and maintaining the houses now building, and which will accommodate thirty additional patients. The medical report, read by Dr. Arthur Hill Hassall, states that the improvement in the health of the patients at the hospital was very great.

*Longton.*—The cottage hospital here in October last became the property of the town, and a meeting of the governors has been held to elect the yearly committee. The Mayor of Longton (Mr. T. W. Barlow) presided. It was stated at the meeting that there were eighteen patients in bed, and there had been twenty, so that there had been a great strain upon the funds, and there was a debt of 62*l.* 9*s.* They were in debt 50*l.*, and their expenses were heavier now than in the summer. He believed the whole population benefited by the hospital, persons of all trades being liable to accident. A committee and officers were appointed.

*Tetbury.*—The general annual meeting of the subscribers to this institution has been held. Among those present were the Duchess of Beaufort and various other ladies, the Right Hon. T. Sotheron Estcourt, the president, and several clergymen and other gentlemen. The report for 1872 was adopted. It stated that the hospital, which was begun in 1866, in a small rented cottage, has been put on a more permanent footing in the course of the last twelve months by the completion of a commodious building erected on a very favourable site, at the expense of the president. . . . . "We are happy to say that our financial position presents a satisfactory sheet. We have paid off the balance of last year, we have been able to meet the expenses of a first year in a new building, and we have a balance in hand at the bank." The number of patients from the list prepared by Mr. Wickham appears to be 41.

*Ledbury.* — The committee have formally opened the institution for the reception of patients. Mr. Ricardo, in taking the chair, spoke of the usefulness of cottage hospitals in general, and eulogised the exertions of the sub-committee in establishing a hospital for Ledbury. Many were present at the ceremony. The hospital, which is a well-built house, situate in Homend-street, in the town of Ledbury, consists of two large rooms suitable for a day-room and a board-room, a kitchen and back-kitchen on the ground-floor, two large wards—one for men the other for women—a room for the matron, and an operating-room, on the first floor; and several rooms on the upper story, which could be made serviceable should occasion require, but which at present the committee do not propose to use. The hospital is designed for the reception of accidents and diseases requiring active medical and surgical treatment, and is suitably furnished. All the medical gentlemen in the town and neighbourhood have consented to give their gratuitous services. The patron is Earl Somers, and the president is Dr. Henry. Mr. G. E. Masefield is the hon. sec. We understand the committee have received many articles of use, such as linen, books, and furniture.

*Ashford.*—There are fifteen cases in the hospital at the present time; indeed, the calls upon the funds are so great that there is a considerable sum due to the treasurer. Great service is rendered by ladies gratuitously. An amateur concert has been given at Charing on behalf of the hospital. There was a large gathering of gentry present at the concert. The ladies and gentlemen who carried out the programme all belonged to the upper class of society, and the whole affair was very successful. A sum of 8*l.* 10*s.* was realized on behalf of the hospital.

*Wisbeach.* — The North Cambridge Cottage Hospital at Wisbeach is making progress at the expense of Miss Trafford-Southwell, of Grantham. Miss Southwell proposes to endow it with 3,000*l.* for its future maintenance. She has also undertaken to provide it with surgical library and instruments. Mr. William Peckover, of Wisbeach, gives 2,000*l.* to the endowment, and Mr. Algernon Peckover, 500*l.*

## EXTRAORDINARY CASE IN THE BUILDING TRADE.

UNDER this heading a lengthened report of part of a local case in progress is given in the *Sussex Express* of last week. It began in the Queen's Bench, before Mr. Justice Mellor and a common jury, but has been handed over by mutual consent of the parties to Mr. J. Smith, a barrister, as arbitrator, under whom it has been progressing. The parties in the case are Mr. F Isaacs, a builder at Reigate, plaintiff, who claims 514*l.* 13*s.* 10*d.* for work done and materials supplied, 100*l.* for detention of business books, &c., detained by defendant, and 200*l.* damages. Defendant is Mr. John Fuller, by whom plaintiff was employed in building a house at Reigate. Plaintiff instructed his counsel to state that while at defendant's house, with his books and documents, trying to get a settlement with defendant, he was detained while four men were called in and an attempt made to get him to admit that certain scaffolding, &c., belonged to defendant, and that defendant ultimately detained his documents.

## WIRING THE WORK.

MR. HUMPHREY TURNER, of the Cardigan Steel and Wire Mills, has patented an invention of his for applying wire to building and other purposes. The invention consists in the application of wire, steel cut in strips, or iron rolled to particular patterns, for walls, ceilings, roofs, and floors of buildings; it is also applicable for large cisterns, water-tanks, brewers' squares, and other vessels. In the erection of a house it is thus applied. The foundation is laid and brought up 12 in. or 18 in. above the ground. Iron, cast metal standards, and straining posts are fixed at certain distances. To these wire is attached from ¼ in. to 2 in. apart, and is strained from the posts through holes in the standards. Panels and proper stay posts are then fixed inside the wire at proper distances, according to the thickness of the walls required. The walls are formed by means of a concrete, and while this is being laid on inside, the plasterer may carry on his work on the outside, by laying on a better material consisting of cement and sharp sand. The walls being brought up to the height required for the first floor, iron plates are laid upon them with holes for the wire to pass through. An iron or cast metal beam is then thrown across the centre of the rooms from wall to wall, and when the walls are complete, the wire is strained upon them through the plates; and in this way the whole of the building is securely tied. Mr. Turner claims that the wires will supersede the use of floor joists of wood, and will form beds for concrete floors. They will also answer on the under side as laths for the plastered ceilings, and the plastering may be carried on at the same time as the laying of the floors in concrete. The next floor is completed in a similar manner. When the required height is reached, the plates and beams are laid so as to give a proper fall for the water, and a wall is carried on the top of the plates for 3 ft. or 4 ft. The wires are then strained across the whole of the top, and on these concrete is laid, thus doing away with rafters and slates. Mr. Turner contends that the only wood required in the construction of a dwelling-house will be for doors, cupboards, window sashes, and panes. The stairs may be of concrete or wood. Houses thus built would be almost fire-proof, and no vermin could get a lodgment in the floor and skirting boards, because they would be made of solid concrete.

## WINCHESTER COLLEGE CHAPEL.

SIR,—I have not the slightest intention of entering upon a long public correspondence with persons who are afraid to give their real names, but shall be obliged if, as a mere matter of justice, you will be good enough to insert this one letter by way of reply to your correspondents, "D." and "North Hants." "D." complains that the Winchester authorities treat all representations with indifference. This is a curious charge, inasmuch as no representations have been made. He is, however, perfectly correct in saying that the work of restoration is at a stand-still, owing to want of funds. As to "North Hants," I beg leave to inform him, that his letter is a tissue of falsehoods, and that, with all his boasted information, he knows nothing about the matter. The accumulated fund which he speaks of exists only in the imagination of himself or his private informant. If "D." and "North Hants" have the manliness to write to me privately, I will answer their letters, but shall take no further notice whatever of anonymous communications.

THE WARDEN OF WINCHESTER COLLEGE.
*Winchester.*

## THE FATE OF THE CHELSEA WATER BILL.

IT is gratifying to be able to record that the audacious Bill for the formation of an unsightly wall and reservoir to replace the trees and general landscape on the Thames, right opposite to the famous holiday resort of the Londoners at Hampton Court Palace, has been thrown out of the House of Lords without even the usual formality of a second reading. The action taken on the part of the Royal Academy, in which Mr. Marks did his work well, has brought about this very satisfactory result. Corporations or companies have the assurance to try to do things so impudent and unwise that no individual connected with them would dare to propose himself to do the like.

## ARCHITECTURAL PUBLICATION SOCIETY.

IT is now several years since the subscribers to this Society have received any instalment of the Dictionary, either text or illustration; no reports have been issued, and no annual meetings held. I think it would be well if the secretaries would, through your columns, make known to the subscribers the exact state of progress of the Dictionary. The local secretaries obtained many subscriptions on the understanding that the work would be completed forthwith, and it is due to them to explain why there is no sign of completion.

L. H. S.

## GAS ESCAPE AND THE SAFETY LAMP.

SIR,—I beg to thank you for the favourable notice which you published in your issue of last week of my safety-lamp. Curiously enough, on the same page, and in a line with this article, is the account of "a serious explosion of gas" at Walsall.

The necessity for adopting safety-lamps in gas works and other places where explosive materials are stored or used is obvious. Had one of my lamps, instead of a naked light, been in the hands of the gasfitter when inspecting the spot from which gas was escaping, no explosion could have taken place. Under ordinary circumstances, gas cannot penetrate the wire gauze column of my lamp; under very extraordinary pressure, it is possible to drive the gas through the outer casing, but only in such a small quantity that nothing more alarming than an innocent puff goes off, which merely puts out the light, without even any damage to the lamp itself.

WILLIAM YATES.

## WINCHESTER NEW TOWN-HALL.

AT the last meeting of the Winchester Town Council, the Guildhall Committee reported that, in consequence of a defect having appeared in the west wall of the great room, they thought it desirable to have the opinion of Mr. G. Legg, architect, who recommended that, in order to strengthen the wall, six buttresses should be erected on the west side, and piers added to the walls under the room; likewise that a parapet should be erected on each side of the roof. The committee recommended that the report of Mr. Legg be adopted, at an estimated cost of 225*l*. The reports and plans proposed by Mr. Legg, and a correspondence with the architects, Messrs. Jeffery & Skiller, on the subject, might be perused at the town clerk's office.

After a long discussion, and some hard words, the report was adopted. The appearance of the four statues in canopies on the front is strongly objected to: and not without reason.

## SEWAGE AND ITS VENTILATION.

IN a paper "On the Relative Value of Clarified and Unclarified Sewage," by Mr. William Paul, F.R.H.S., Waltham Cross, the author says:—

"I have looked long and earnestly at this question, both from the theoretical and practical point of view, and from numerous experiments have arrived at the conclusion that sewage, when 'clarified,' is a most valuable manure for porous or well-drained soils, even when cultivated according to the recoguised systems. On the other hand, I have no faith in the value of sewage of any kind, or for any land, if used in an 'unclarified' or sludgy state, unless accompanied with a laborious and costly system of cultivation. . . . . Many years ago I used 'unclarified' sewage extensively, and for a lengthened period. The results were not satisfactory until I adopted the practice of stirring the surface of the soil after every application of the sewage. The results then exceeded my expectations, but when estimated were not found equivalent to the largely increased cost of labour. Afterwards the sewage was clarified by the use of quick-lime, and used for a lengthened period in this state: this was judged better than the use of unclarified sewage without labour, but not equal to its use with frequent hoeings. At present I have two large cesspools into which the sewage is diverted and allowed to settle, becoming almost clear by subsidence, in which state it is freely used and found most valuable.* In conclusion, I would say that I am of opinion that the sludge in sewage is valuable as a manure; but I object to its application to the surface of the soil in a semi-liquid state. If so applied the surface of the soil should be constantly stirred and broken, which, of course, involves considerable expense. It then becomes a question whether it is not more economical to separate the sludge, employing it as a solid manure or for other purposes, leaving a clarified liquid behind for irrigation."

**A report by a committee on the ventilation of the sewers of the Halifax union-house was last week read before the local board of guardians. We give an abstract of this report:—**

"Of the many difficult and important works your committee have had to encounter, not the least was, which could be the best mode of re-sewering the poor-house, in a sanitary point of view, so as to make the house as healthy as possible. Your Board will remember it was decided to make new and improved sewers of earthenware pipes. Mr. Barber, the architect, devised a plan, in which he was assisted by Mr. Dutton. the governor. The next problem was, and the most difficult to answer, how are we to ventilate the sewers of their poisonous gases? when Mr. Henry Stott, of West Vale, came forward of his own accord, and proffered the use of his patent for ventilating sewers, together with his services, which were most gladly and willingly accepted. It is now nearly nine months since the Board, through the recommendation of your committee, adopted Mr. Stott's system. . . . . The main sewers are removed to the east, west, and north sides of the house, into which the whole of the lesser drains empty themselves; and no single drain runs under any inhabitable building. The two sewers running into Gibbet-lane are provided at their farthest extremity with very large syphons, 18 in. in diameter by 12 ft. long, and also a ventilating-shaft of 18 in. in diameter, to admit of fresh air. The sewer running into Hanson-lane is also provided with a large syphon and ventilating-shaft, to admit of fresh air. These main sewers are connected by dry earthenware pipes, 12 in. in diameter, to the ashes-hole of the boiler fires. The ashes-hole of each of the boilers is provided with a sheet-iron door, by which they can be made air-tight. Thus the fires draw the air from the sewers, which is passed through the fires and purified, and taken up the chimney-stack. The fires are supplied exclusively with air from the drains, and the gases being continually removed vacuums are created, and the poisonous gases are continually being drawn from even the most remote drains, and thus ventilated of their noxious gases. To prove that this is so, two fans have been inserted in each of the main sewers, and so long as the doors to the draught-holes of the boiler fires are closed, these fans will revolve with great rapidity; but open the doors, and the fans soon cease to revolve, clearly demonstrating without doubt that the sewage air is continually ventilated and changed. There is no denying the fact that the poor-house is now safely free from noxious drain smells; and since Mr. Stott's system has been applied, the health of the house has greatly improved. . . . . At Oldham, where this system has been applied in certain parts, such localities have improved in a sanitary point of view. And at West Vale, where the patent was first applied, the health of the inhabitants has much improved, and the mortality decreased."

* "From experiments not completed when this paper was read," adds the author, "I found a marked difference in geraniums watered with sewage clarified by simple subsidence, and with sewage clarified by lime, in every case in favour of the former."

## CASES UNDER THE METROPOLITAN BUILDING ACT.

### WOODEN BUILDINGS.

*District Surveyor for Penge and Norwood* v. *Richard Winnifrith.*—This case, at the Lambeth Police Court, was for not giving notice (under the 38th section) of the erection of a wooden carriage-shed. The hearing was on January 23rd, 1873. The district surveyor (Mr. Edwin Nash) described the structure as being 28 ft. 6 in. long by 23 ft. 6 in. wide, one story high, enclosed on three sides and open on the other side, and roofed with wood and felt.

Upon this the magistrate stated that, *being open on one side*, he doubted its being a building within the meaning of the Act, whereupon the district surveyor stated that many structures of a similar kind had been deemed to be buildings. The magistrate then asked for cases, and adjourned this one for a fortnight, for the district surveyor to bring precedents.

On the 6th of February, the district surveyor argued that this was a case of much importance, because it would affect the mode of erecting buildings, not only in his own district, but also in all the districts throughout the metropolis, and therefore he wished to make a fuller statement than is customary with him at this Court. He observed that the Building Act has, unfortunately, no preamble; but, if it had one, it would unquestionably have contained the phrase, that it is expedient to check the spread of fire in the metropolis, inasmuch as all its provisions are framed most conspicuously with that object. Neither does the Act contain any definition of a building, and consequently the presumption seems natural that all structures which are not movable chattels are buildings, and must be erected in the manner prescribed by the Act; and there is an indication of this meaning in section iii., which states that the term "External wall shall apply to *every* vertical enclosure of *any* building." Again, the first clause of the first schedule states that *every* building shall be enclosed with walls constructed in a certain manner. He alluded to all this, because it is evidently intended that structures should be enclosed with walls, and not with wood, and he felt sure that if the structure in question were to take fire, other structures near it would also be burnt. Moreover, the Metropolitan Board of Works, being now the controller of the Fire-brigade, the interests of that body would suffer.

But he further urged that the main question had yet to be considered, namely, as to whether a structure *open on one side* is a building or not, within the meaning of the Act, and in doing so it was necessary to understand what was meant by a side, and what number of sides a structure may have without its rising to the dignity of a building. Many buildings are irregular in shape, and have a great many sides, and a building might be a decagon, or a duodecagon; and then if 1-10th or 1-12th of its outside were open, it would not be admitted into the category of buildings, if the being open on one side gave it exemption; or it might be circular, having only an inside and an outside; and then (the district surveyor said) he should want to know how much of the periphery must remain unenclosed. The exemption derived from being *open on one side* would apply not only to the flimsy structure in question, but to others, however large or substantial: so that, if as strong as a castle or a warehouse, they would be exempted, which, he thought, could not have been intended; and he felt sure that if the idea of openness on one side were to prevail, he should be unable to conduct the business of his district; and he asked the magistrate to permit him to make the remark that the Building Act appoints the magistrate quite as much as it does the district surveyor—as an officer to assist in carrying out the operations of the Act.

The district surveyor produced five precedents of structures open on one side, and which had been condemned by police magistrates, three of which were decided in the Lambeth Police-court, and he stated that he could produce numerous analogous cases, but he thought it best to confine himself exactly to structures *open on one side*.

The magistrate ordered the payment of a fine of ten shillings and costs.

On the 20th February the same builder was summoned by the district surveyor for noncompliance with his notice of irregularity in respect of the same building, when the magistrate ordered that it be altered so as to bring it into conformity with the Act.

## BUILDERS AND THEIR WORKMEN.

MR. THOMAS PRETTY, a builder, of Lee, was summoned at the Greenwich police-court, by Edgar Austin, for wages.

The complainant was called, and said he went to work, in the first instance, for a Mr. Roberts. This was up to the 25th of January last. On the Monday, January 27th, defendant came and asked him for Mr. Roberts, saying that if he (complainant) saw four or six plasterers he was to put them on. Mr. Roberts was master, and would see that the men had their money. On the Saturday he (defendant) would not pay witness and the others, and declined to give any reason.

Cross-examined: I knew that there was a contract with Roberts, and that the time for the completion of the contract had expired. He told me to put on the plasterers, but he did not say he (defendant) would pay us. I rest my claim on the words used.

Charles Hooper confirmed the evidence of the complainant, and said he saw Roberts and told him he considered he (witness) was working for Pretty, and not for him (Roberts).

Samuel Roberts, of No. 8, St. John's-place, Blackheath, said he had, in the first instance, made a contract.

Cross-examined: I stopped on the 1st of February—a week after I had received the last money. I went on the Tuesday, after Monday, the 27th of January, and saw Mr. Pretty, and said I would finish the work if he would advance me the money for wages, but this was declined.

Wm. Wedon said he was present when Mr. Pretty told Hooper to put on two more men. Mr. Roberts was present on that day.

The defendant was sworn, and said he had contracted with Mr. Roberts for the plastering, whom he had paid 20*l*. too much. On the Monday in question he did tell the complainant to set on plasterers, but he did not promise to see them paid.

Mr. Patteson said no doubt there was a fresh contract entered into by Mr. Pretty, and an order was made for the claims, with 5*s*. costs in each case.

## THE "HAWK AND HANDSAW."

SIR,—In the *Penny Magazine* of March 21st, 1840, page 112, are these words:—

"*Herons in Westmoreland.*—Formerly, indeed, they were more commonly and wantonly shot than they are now, when the use of firearms is more restricted than was once the case; not that they were considered of any value, for the lower orders of the inhabitants of those parts would far sooner think of eating an old tough rook than a heron, provincially called a *heron-sew*."

JOHN WHISTLER.

Sir,—With reference to the common name of the heron, I may mention that I heard it pronounced "harnsher" on the Orwell; and when I showed that I did not understand what was meant, the speaker added, "hernshaw," "hern." Moreover, a friend who lived for many years close to a heronry near Brandon, in Norfolk, assures me that the people there always called the bird the "hanser," with the "a" broad.

Pray, sir, forgive me if, in conclusion, I say to "A. H." "Neow yew've gott'n yewr 'hanser.'"

C. J. GEDGE.

*** With this the correspondence may end. The grounds on which we opened it will be remembered. The interest excited by questions concerning the text of Shakspeare is shown by the circumstance that we have received more than forty letters in the present case.

## MICROSCOPICAL SOCIETIES AND FREE FORUMS.

SIR,—The amalgamation of these societies, with some alterations to meet contingencies, would add much to the well-being of amateurs, and energy of scientific persons, when conducted by a well-chosen chairman and other officers, and would be great help-mates to free public libraries, which are now well conducted, without the nuisance of the ballot-box, as now used in Microscopical Societies. It should be asked, wherefore is this abomination employed, where peaceful and sober persons assemble for the purpose of mutual information only, apart from politics? Furthermore, the exclusion of many thoughtful persons of the lower class from enjoying research into hidden nature, is now upheld by persons who have not shown their aptitude and progressive power in microscopical science during the last fourteen or fifteen years' action of their societies, which have not even produced "a ridiculous mouse," and exclude suggestions from an outsider in your pages by silence. However, it is hoped that the press may kindly make some impression on these close societies, whilst their annual assemblies are like levees of the Queen, where admiration of beauty chiefly is talked of, not of usefulness; bearing in mind that external beauty of microscopical objects is no guide to excellence in quality, and gems may be found in the most unsuspected corner of nature, as in the buckwheat. Conversation with many members has revealed (what is commonly called humbug) no benefit to real science; and public experience of microscopal display proves fully such to be the case for outsiders to give opinion thereon. Much more can be said to show that fresh blood and system are requisite to effect some good in the science. In these days of boasted science, every avenue should be available to keep pace with our neighbours on the Continent, and in America; therefore the following propositions are set forth:—

1. That the manufacture of microscopes, in various forms, at moderate price, should be effected.

2. That amateurs and artists may occupy their leisure hours in examining dame Nature.

3. That confirmation of doubtful questions might be easily solved.

4. That artistic works may be more generally founded in nature's laws of mechanical forms.

5. That principles of the microscope might be better understood than they are at present displayed by authors, and by witnesses in courts of law, bearing in mind that the greatest magnify-

ing powers are not the most needed to be known for practical purposes in daily occupations of life.

6. That the ten specimens of microscopical drawings supplied to the Vice-President of Education, for the purpose of superseding present patterns of nothing in our Schools of Art, are fair examples of benefit from the study of the microscope by Leeuwenhoek, which can be seen at the author's house.

The history, progress, and present state of microscopical science, and proposed future study of the subject, have been suggested for a lecture, if sufficient interest thereon can be collected within four walls, by yours obliged,

WILLIAM PARKER, M.R.C.S.

## BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the council meeting, February 26th, Mr. J. R. Planché, Somerset Herald, in the chair, it was announced that the congress for the present year would be held at Sheffield during August or the early part of September next, the Duke of Norfolk having accepted the office of president for the occasion.

At the evening meeting on the same day, Mr. Gordon M. Hills, treasurer, presiding, several papers were read and exhibitions made by Messrs. Roberts, J. W. Baily, Dr. Kendrick, and others, and amongst them was a broken portion of a Roman bronze eagle, presumed to belong to a standard-bearer, and lately found in Victoria-street, City. Mr. J. W. Grover further illustrated this interesting object by a drawing of a Roman eagle, about the same size, found at Silchester, by the Rev. Mr. Joyce, who, it was intimated, will read a paper on the subject at the Society of Antiquaries very shortly.

A paper was read by Mr. H. Syer-Cuming on Roman Conduit or Water Pipes, and illustrated by some sections of Roman leaden pipes found lately in the City and in Beaulieu Abbey, Hants; the section of the one found in the City was unusually large, being 6 in. in diameter, and was exhibited at a previous meeting by Mr. Edward Roberts.

Mr. Blashill then read a paper, communicated by Mr. J. T. Irvine, on Roman Temples in Bath, especially referring to those of Apollo and Minerva, which Mr. J. W. Grover commented on, pointing out, amongst other interesting matters, that there was evidence of coal having been used in these temples by the Romans, for the purpose of keeping up perpetual or sacred fires.

The treasurer exhibited a fine specimen of the Peg tankard, said to have belonged to Sir Francis Drake; it was of silver, and weighed 30½ oz. avoirdupois; and then the meeting stood adjourned to the 12th March next.

## TECHNICAL EDUCATION IN EDINBURGH.

IN reference to the scheme described in last week's *Builder* for the establishment of a technical school in Edinburgh, to be maintained out of available funds connected with the Heriot endowment, it is much to be regretted that the Trades Council, and a large section of the industrial classes have resolved to oppose the movement most strenuously.

A special meeting of the Trades Council was held for the purpose of receiving a deputation from the Committee on Technical Education. Mr. W. Cousin, architect, in introducing the deputation, said that with the view of eliciting the opinions of the working classes on the scheme for technical schools for Edinburgh they had requested this meeting with the Trades Council. He said that they were desirous of promoting at least one large and well-appointed school in which the children of their skilled artisans who had gone through the course of training of the primary schools should have an opportunity of acquiring a knowledge of geometry and of architectural and mechanical drawing in its practical departments. He referred to the advantages to be derived from these schools, and said that in alluding to skilled artizans, more especially of those connected with architectural operations, he had no hesitation in asserting that he could point to buildings in and around Edinburgh in which the masonry, carpentry, and joiners' work are unsurpassed, if equalled, in any part of Great Britain. Having workmen of such skill of hand, the desire of the committee was that these and others of like mould should have an opportunity of cultivating their minds with energy and zeal.

A few days subsequently the Trades Council met to give the subject further consideration, when it was resolved "to oppose by every legitimate means the appropriation of the Heriot funds for such a purpose." It appears that the surplus funds of Heriot's Hospital now amount to about 20,000*l.* per annum, and Parliament having already afforded ample means of educating the poorest children up to the level of the out-door Heriot Schools, it was thought that the munificence of the founder would be best applied in supplying a higher and more practical education than is furnished by the Government system of education.

## LEAD PIPES AND FROST.

SIR,—I observe a suggestion in your paper for the prevention of the bursting of water-pipes by frost, that india-rubber tubes should be inserted inside the lead pipes. Now, I cannot express approval of the idea, from a fear that a bad effect would be produced upon the water. I also consider that when in process of time the india-rubber became cracked and worn,—which in hot-water pipes might not be long,—it would become a great nuisance. Seeing also that this india-rubber tube would encroach considerably upon the interior area of the lead pipe, a larger lead pipe would require to be used than if there were no india-rubber tube inside of it. If the india-rubber tubes were to be used at all, I would be inclined to prefer their being put outside the lead pipes in place of inside. If, however, it were more the general practice to wrap up our lead pipes in felt, and protect them from cold draughts, there would be fewer burst pipes during frost.

As to Mr. M'Lauchlan's idea, at page 174, that an oval or flattened water-pipe would on account of its shape not burst, that, I fear, is a mistake. The cause of a water-pipe bursting is because the ice takes up more room than the water, and if there be no room for expansion longitudinally within the pipe, then the ice, or the water in the act of becoming ice, simply forces out the side of the pipe, and so makes room for itself.

The shape of pipe necessary to carry out Mr. M'Lauchlan's idea would be a square-shaped one, say flat on top and bottom, and concave on its two sides ) ( : this shape, however, I fear would be more troublesome and expensive in the fitting up, and I would not like to guarantee its being entirely frost-proof either.

W. P. BUCHAN.

SIR,—During the ten years that I have been a reader of the *Builder*, I have often wondered at the complaints about frost-burst pipes that have from time to time appeared in its pages, and at the apparent difficulty of finding an easily-applied remedy. During a fair practice of a considerable number of years now, I have never had a single case of pipes being burst by frost; and the method of preventing it is very simple. In the first place, I take some trouble so to arrange my pipes somewhere *well* within the house, if possible, and away from external walls. But if they must be against external walls, as is often enough the case, then I have a ¾-in. or ¾-in. wood lath fixed against the wall, and fix the pipes on *that*; and they never freeze, even during the rigours of a Scotch winter on the East coast.

In fact, two things only are to be guarded against,—first, pipes touching a cold external wall; second, allowing a current of frosty air to play over them at any part. The means of preventing these *almost sole* causes of frost-burst pipes will readily enough suggest themselves to any person of intelligence, in any circumstances.

D. H.

**Chart of Manufactures, Trade, and Agriculture.**—A sheet, titled "The 'Popular Educator' Chart of the Progress of Manufactures, Trade, and Agriculture," has been issued by Messrs. Cassell, Petter, & Galpin, with Cassell's new "Popular Educator." It gives a condensed list of leading inventions and inventors' names, discoveries, materials, names of discoverers and travellers, chronological list of events, &c., and therefore contains a mass of useful information, well arranged for ready reference, and in small compass.

## MONUMENTAL.

A SUBSCRIPTION having been set on foot for the purpose of presenting Dr. Pierce, ex-mayor of Denbigh, and coroner for the county, with a testimonial, the committee resolved that as Dr. Pierce would not accept plate, the money subscribed, amounting already to the sum of nearly 500*l.*, should be devoted to the purpose of erecting a testimonial to him, and that Mr. Underwood, architect, should be asked to prepare a design for the same. The testimonial took its rise upon Dr. Pierce giving up the mayoralty after occupying the civic chair for five years in succession. During his years of office many and great improvements were made in the town: from being ill paved it is now one of the best paved in the principality; a thorough system of drainage was commenced, designed by a competent engineer; a fountain and two public clocks put up for the benefit of the town at the sole cost of Dr. Pierce; besides which the town was honoured by being made the capital of North Wales. In reference to the heroic exertions of Dr. Pierce at the time of the cholera in Denbigh, the subscribers wished the testimonial to take a shape which should commemorate his services then as well as his subsequent actions in connexion with his profession and his public duties. A suggestion has been made, which has met with much approbation, that a monument should be erected in the town, consisting of a square base, surmounted by an obelisk or column. Upon the four faces of the base four bas-reliefs are designed,—one a bust of Dr. Pierce, one "Visiting the Sick," one "Clothing the Naked," and the other "Feeding the Hungry."

## THE TRADES MOVEMENT.

*Edinburgh.*—The joiners resolved "to use every lawful effort to carry out the resolution adopted at the meeting of the four branches of the association held in St. Mary's Hall, Lothian-street, namely, 'That we come out on strike on Friday, 28th February.'" The employers have had a meeting on the subject, and have resolved to adhere to their offer of 7d. per hour, or ½d. in advance, the workmen wanting another half-penny. It is said that of 1,400 joiners in Edinburgh only 300 or 400 had shown a disposition to strike.

*Leith.*—A strike of joiners here, too, is said to be imminent, the masters having refused to grant the demand of 1d. increase by the men.

*Ayr.*—The operative joiners of Ayr met to receive a reply from the employers to the demand made for an advance of ½d. per hour on and after 3rd March, and that hours be reduced from 54 to 51 per week. The masters' reply was that they would grant an advance of ½d. per hour on and after 3rd March, but no reduction in the hours. This the men refused.

*German Workmen in England.*—According to a telegram from Berlin, the *Voss Gazette* says that a great number of workers in the metal trade, who, in consequence of the strikes in the north of England had been enticed by speculators to go thither, had been badly treated, and were forced to obtain pecuniary assistance from the German consuls in order to return to their homes. The money thus advanced has now been demanded by the German Government from the workmen, and in consequence diplomatic intervention has by them been invoked in order that the speculators who induced the men to come may be made to fulfil their engagements.

## SANITARY MATTERS.

*Oxford.*—The proposal to appoint one medical officer of health for the whole of the county, under the provisions of the Public Health Act of last session, has met with considerable but not with complete success. At an adjourned meeting of the representatives of the urban and rural sanitary authorities held in Oxford, it was determined to appoint a central officer of health for the whole county, or rather for the area comprised within the limits of the following sanitary authorities, namely:—Rural: Banbury, Bicester, Chipping-Norton, Henley, Thame, Witney, and Woodstock. Urban: Bicester Market-end, Chipping-Norton, Henley, Thame, Wheatley, and Witney. Oxford and Banbury urban districts and Headington rural are excluded from the scheme, preferring to retain the sanitary supervision of the several districts in their own hands. The proposed medical officer is to receive a salary of 760*l.* per annum. The area

under his jurisdiction will be very large, comprising, in fact, nearly the whole of the county, fifty miles in length and from seven to twenty-eight miles wide.

At *Evesham*, the alarming reports from the county analyst as to the polluted state of the public wells of the borough have led the sanitary committee of the town council to hold a special meeting to consider the matter. It was ordered that all the wells be examined and thoroughly cleansed out; and as a preliminary step, it was resolved that the well at the corner of Oat-street be at once opened, excavated for 9 ft. around, then filled with puddled clay, and cemented. It is thought that this will prevent the percolation of sewage matter into the water. A discussion took place as to Mr. Barry's and other schemes for the sewerage of the town, but as they all involved a water supply to flush the sewers, the dry system (house-to-house collection daily) as employed at Rochdale and Manchester, was considered by the committee to have the greatest advantage. A deputation from this borough will probably visit the sanitary works at these towns.

*Wales.*—The state of some Welsh habitations has been shown by the newly-appointed inspector of nuisances for the rural district of Aberystwith, who has made two reports which reveal an almost inconceivable state of degradation and immorality amongst the people. A large number of the houses are altogether unfit for habitation, and these hovels are terribly overcrowded, adults of both sexes sleeping together in the same bed. In one case sixteen men sleep in eight beds in two small rooms, and in another instance four men occupy the beds during the night, and four during the day, the day occupants often having to wait until the night men get up.

## NEW TIMBER DOCK AT BARROW.

LAST week a large new dock at Barrow-in-Furness was formally opened. It contains an area of 33 acres, and is called the Buccleuch Dock, out of compliment to the Duke of Buccleuch, who, with the Duke of Devonshire, is deeply interested in Barrow. It is intended mainly for the timber trade, which, along with other branches of shipping, is rapidly increasing at Barrow. There is wharfage accommodation alongside the dock sufficient to admit of 100 vessels discharging at the same time, together with spacious quays and timber-yards adjoining. Another new dock, containing the enormous area of 200 acres, is now in course of construction, and will shortly be opened.

## THE UTILISATION OF COAL-DUST.

PROFESSOR GARDNER, F.E.S., lectured last Saturday evening, at the Royal Polytechnic Institution, on "Fuel,—What shall we Burn?" In the course of his remarks, he said that the question of fuel was most important at the present day. Coal had never before attained the high price of 54s. a ton, nor had it before continued to keep the enormous price it now commands. Coal was the most important fuel we possessed, but, of course, it was not the only fuel. By chemical action various substances, such as lead, cast iron, &c., were made combustible, and, indeed, the oxidation of any substance would bring about combustion. It had been calculated that the amount of coal raised in this country yearly was 144 millions of tons. When raised from the mine it underwent many processes, and by this means we have "screen," "nuts," and "smudge" coal. This latter, which we call coal-dust, had never been properly utilised, though it amounts to a very large quantity indeed. This coal-dust did not in any respect differ from the larger kinds of coal, but owing to its physical character and peculiar size it was unfit for burning in ordinary fireplaces. Out of the 144 millions of tons of coal raised yearly, 24 or 25 millions of this "smudge" or dust coal, which was of the best kind, was perfectly useless. By submitting it to a certain process it could be formed into a solid lump, having all the qualities of ordinary coal. The agent employed for the agglomeration of the dust coal was a fluid invented by Mr. Barker, called "the diamond fuel cement," which had the power of making the small particles resist water and retain the solid form. The lecturer then proceeded to verify his statements by transforming coal which was literally in a state of powder, into a solid lump. In a few minutes the experiment was performed, and fragments of the coal were distributed amongst the audience. The cost of conversion was estimated at 3s. per ton.

## "THE EFFECT OF CHARCOAL ON PLASTERING."

SIR,—In the first paragraph of "William Pulham's" letter last week, I can see very little sense. Passing on, he says, "having condemned his (my) suggestions." Not my suggestions, however, but his own; only holding them as mine in his own imagination. He combats these, which is, of course, as attributed to me, a very nonsensical proceeding.

He then goes on to state what every person of skill and experience ought already to know, viz., how to do work in Keene's cement. A careful reader would notice I did not suggest the covering over of old highly-impregnated plaster. Any suggestion I made was totally opposed to that idea.

I merely mentioned the cements in their order as I considered them to be most suitable. I know Keene's cement has been worked as I described it, with an ordinary coating of common plaster on the bottom: this should be quite dry before putting on a straighting coat. The straighting coat, or especially a coating on the surface of it mixed with a moderate proportion of coarse or fine Keene's cement, before the finishing coat, is put on pure. The whole done thus will combine with the ordinary plaster, and make a beautiful solid job. I have seen it done in this way and stand well. I know this is often done in Scotland; and when well done, where the work is not exposed to knocks, I see no objection to it. Manufacturers may not approve of this; but I see no reason why they should object to it. I consider such cements to be very useful, and capable of considerable modification, in their being applied for different purposes; and I question, notwithstanding "J. C. Part's" disclaimer as the manufacturer of Martin's cement, if it would not succeed used like Keene's, as I have described it, by a skilful man. Has Mr. Part seen it tried?

Where expense is no matter of consideration, it might be done wholly with Keene's cement; and this is necessary where it has to stand knocking of any kind; especially, it must be made strong.

Though the method Mr. Part describes may be very good, it is somewhat expensive, and he must remember that Martin's or any of the cements are liable to *crack*, excepting when used in large masses, and in a great measure, independent of woodwork; as however well bound or seasoned, it is the nature of wood to swell and shrink in some degree, changes in the atmosphere, as well as other causes, tending to this movement: and as the cements would not yield, small cracks would inevitably appear.

"L. L." wished *cheapness* to be taken into consideration, and as he was an old subscriber to your journal, requiring information, I thought him entitled to what I might be able to afford.

Let me say I have reason to believe common plaster, and plaster of Paris for the finishing coat would suit his purpose. Perhaps your correspondents are not aware of the fact, that sulphuric acid is in a very large proportion a constituent in plaster of Paris, as well as in Keene's cement. Some use plaster of Paris as a non-conductor of heat. It is very unlikely that the gas in "L. L.'s" kitchen would affect it to any degree, as sulphuric acid gas combines with it, and it does not continue active after it is set and dry.

To put on a coating of pure plaster of Paris is certainly more difficult than ordinary work; but this, if the coating below it is not too dry, is not insuperable; only a small space could be covered and finished off at once, say only a trowelful or two. This I know a skilful workman could accomplish.

It must be remembered it is only for a kitchen, but a little cold milk of lime could be used in gauging the plaster, and this would allow a little more space to be covered, and I do not think it would prove detrimental in such small proportion. Or pure washed sand could be used with plaster of Paris, and finished off with a skimming of pure plaster of Paris. The kitchen could be whitewashed with plaster of Paris instead of ordinary whiting.

JOHN DAVIDSON.

## CHURCH-BUILDING NEWS.

*Newark.*—The new church of St. Leonard has been consecrated by the Bishop of Lincoln. The contracts were entered into by Messrs. Hodgson & Facon, under the direction and superintendence of Messrs. Evans & Jolly, architects, for the building of the church, with accommodation for 600 persons. Land was purchased of the trustees of the Duke of Newcastle in North-gate, and the building is now complete. The style of the edifice is Early Decorated, and it consists of a nave, 72 ft. by 25 ft.; chancel, 30 ft. by 25 ft., with chancel aisles for organ and children; and north and south aisles, 72 ft. by 11 ft. On the south side at the east end of the nave arcade there is a bell-turret. Provision is made for ingress and egress by a western doorway, and by a south porch and south door at the east end of the south aisle. The height of the nave and clearstory is such as to give proportions of more than ordinary elevation, and the chancel is similar in this respect, and, having a large east window, the hope is naturally entertained that some one will undertake the filling of the window with painted glass worthy of the position. It should be mentioned that the side arches of the chancel have screens of traceried woodwork. Staffordshire tiles have been used to lay the floors in the chancel and sacrarium. The tiles are of a slightly ornamental character, from R. Minton Taylor. Immediately over the sacrarium the portion of the roof ceiling is divided into panels, each having a decoration of an angel, or other conventional form suitable to the position. This decoration is also of a temporary character, and it is hoped that ere long paintings of a more costly character will be provided. The pulpit is as yet in an unfinished state, and, according to the design of the architects, is capable of being made a feature of the church. The benches are executed in red deal, stained and varnished, and both them and the seats are all open and free. The church is built of Ancaster stone, except the pillars to arcades, which are of Little Eaton stone, from Thompson & Fryer's quarry, and the roof covered with brindled Staffordshire tiles. The warming of the edifice is effected by means of hot water circulating through a series of cellular cylinders, and so arranged as to supply fresh air through them. The apparatus was fitted up by Messrs. W. N. Nicholson & Sons, of the Trent Ironworks, Newark. The gas-fittings were made by Mr. Rhodes, of Nottingham. The woodwork was executed by Mr. Henderson, of Newark, a sub-contractor, under Messrs. Hodson and Facon. The total cost, including site, will be about 4,000*l.* The cross on the super-altar, the candlesticks, the altar desk, and the pulpit desk have been presented to the church through the new incumbent. They are from Messrs. Thomason & Co., of Birmingham. During the progress of the work it was thought that some provision ought to be made for the education of the children of the district, and subscriptions were liberally offered for the erection of school accommodation. The schools are used on Sundays as church schools. The foundation stone of these schools was laid by Mr. W. Gilstrap, then Sheriff of Suffolk, and the building was erected by Messrs. W. Fretwell & Henderson, and is now completed.

*Seaton.*—A new reredos has just been erected in St. Mary's Church, from the designs of Mr. R. Medley Fulford, architect, of Exeter. The reredos is built principally of Beer stone—a material largely used during Mediæval times. The ancient and extensive quarries from which this stone is procured are scarcely three miles from the site of the church. The re-table, which forms a shelf or slab, projecting some 6 in. from the face of the work immediately over the table, is of veined and polished Devonshire marble; and western marbles are also introduced in other parts of the structure. The reredos proper consists of three compartments, the central one being the highest and largest, though each is surmounted and terminated by an embattled and carved cornice. A large cross stands detached from the middle panel, which is enriched by carved diaper, and upon the arched head above is carved a representation of the fruitful vine, emblematic of the Holy Sacrament. In sunk panels, on either side of the central compartment, are sculptured angels, in the attitude of adoration, each of them swinging a censer. The capitals, cornices, splays, finials, &c., are all carved, the foliage being of an early type. The carved and sculptured work has been carried out by Mr. Harry Hems, sculptor, Exeter. The entire height of the whole is 7 ft. 9 in., and this measurement is just the extreme width of the structure without the wings. These latter are kept subordinate to all the rest; they extend the full width of the chancel, and are plain ashlar of Beer stone, surmounted by a cornice in keeping with the cornice of the reredos-proper.

*Darlington.*—The foundation-stone of a new church, to be designated the Church of St. John, has been laid on a plot of ground near to Bishopton-lane, which has been presented for that purpose. The church is to be a brick building, in the Basilican style of architecture, having nave, aisles, transepts, chancel, and campanile tower. The church is to accommodate 720 persons, the seats to be free. Already 2,100*l.* have been promised by subscriptions, which is about half the sum required to complete the building.

**The Trades Movement and the Social Science Association.**—The Labour and Capital Committee of the Social Science Association have prepared the way for an arrangement between the Barnsley power-loom weavers and their employers, who have agreed, under the committee's influence, to settle their differences and their strike and lock-out by arbitration. Mr. Edwin Pears and Mr. Applegarth, for this service, have received the thanks of both parties.

## SCHOOL-BUILDING NEWS.

*Kettering.*—A new Church school has been opened here. The school erected is for boys exclusively, to accommodate nearly 300. The Duke of Buccleuch gave the site as his contribution to the school. The total cost, exclusive of the value of the ground, and inclusive of the master's house, which is a part of the building, has been over 1,500*l.* The school is built in the Horsemarket. It is easy of access, is built on one of the most elevated parts of the town, and commands a healthy position. In form or design it resembles the letter T, the base of the letter being the master's house, and the stem and cross the schoolroom proper. The extreme length of what may be called the body of the school is 64 ft., and the width 18 ft.; the top cross being 51 ft. by 18 ft. It is lighted with windows of a Gothic character. The roof is open, is supported by polished beams, which rest on carved corbels, and to the ridge is 26 ft. high. It is built in red brick, and has stone window-frames. It is suitably fitted up throughout; class-rooms, a lavatory, and every requisite convenience are supplied for a large school. A good playground is attached. Mr. R. W. Johnston, of Melton Mowbray, was the architect, and Mr. Charles Sharman, of Kettering, the builder.

*Skelton (near York).*—New National schools have been opened here. The site, at the east end of the village, has been given by Messrs. Hepworth, the lords of the manor of Skelton, on which has been erected a building, plain in character, the roof being high-pitched and open-timbered. The school is capable of accommodating 120 boys and girls. The sittings and desks are reversible, being arranged so as to form seats and tables. The architect was Mr. J. A. Davies, Leeds; and Mr. Bellerby, Clifton, was the sole contractor. In addition to the school, a house for the master has been erected immediately adjoining.

*Middlesbrough.*—The Roman Catholic schools just erected at Middlesbrough have been opened by the R.C. bishop of Beverley. The schools are built on a site close to the Newport ironworks. The plan of the building resembles the letter H, the north and south wings being for boys and girls, and the central parts for infants, each school having a separate class-room and gallery. The entire cost is about 2,000*l.*

*Heworth.*—New schools have been opened here. The school premises are situated adjoining Heworth-terrace, near the post-office and North Riding police-station, a short distance from the church. They are of red brick, in modernised Gothic style, and have been built, not with a view to external effect, but for practical school purposes. The building, which consists of two school-rooms and a class-room, with offices and playgrounds, is inclosed within a brick and stone wall, with iron fence. The rooms are lofty, well ventilated and lighted, boarded round the lower parts, and fitted up in accordance with modern school requirements. The desks are reversible. The schools are erected merely for girls and infants, being a "mixed" girls' and infants' school, provision having previously existed in connexion with the parish for the education of 100 boys at the Bilton-street school, Layerthorpe. The additional accommodation now provided is to the extent of 150 scholars. The schools will be in connexion with the National Society. The total cost of the schools has been about 1,000*l.*, towards which Lady Wheler gave 250*l.*, and the Rev. H. Newton the site and a liberal subscription. Mr. G. F. Jones was the architect, and, from his plans and under his supervision, the works have been carried out by the following firms:—Mr. Keswick, bricklayers' and masons' work; Mr. Bellerby, carpenters'; Mr. Croft, plasterers'; Mr. Hartley, the plumbing and glazing; Mr. Baines, slaters' work; Mr. Gowland, painting; and Mr. Fryer, smiths' work.

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**A New Industry in Derby.**—We learn from the local *Advertiser* that Mr. J. A. Lee, of the Severn Engineering Works, near Lydney, Gloucestershire, has purchased the new and extensive works recently erected by Mr. Alpheus Smith at Little Chester, known as "The Derby Wagon Works," and that it is Mr. Lee's intention to remove to it his business, which consists of the construction of Mr. Lee's patent machinery for the manufacture of wood-pulp, and paper-mill machinery. This will bring a large business to the town, as Mr. Lee will employ, it is stated, from 500 to 1,000 hands.

## Books Received.

*Educational Comparisons; or, Remarks on Industrial Schools in England, Germany, and Switzerland.* By SWIRE SMITH, Hon. Sec. to Trade School Council and Mechanics' Institute, Keighley. London: Simpkin, Marshall, & Co.

THE statements regarding education in Germany and Switzerland contained in this pamphlet are important and interesting. They are mainly based upon facts collected during two visits to the Continent in 1872. The substance of them was delivered at a lecture at Keighley in January last. The circulation of the book will be useful.

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## VARIORUM.

THE value of "a hobby" is thus dwelt on in the new number of the *Art-Journal*:—"The man who keeps his thoughts and labours in one unvaried groove is like the mechanician who never oils his machine. But the man who has the happy facility of closing the door of his office or work-room on his toil, takes the surest method of keeping his own powers in the best working order. This is the great use of what we call a hobby. And here is a very special advantage in some knowledge of art. We do not speak now of any general art-education. What we mean is rather the intelligent cultivation of taste, by the study of some particular detail or branch of art. One man may take a special interest in pottery. From the long range of fictile art he may select some one shelf, so to speak, which he may have special facilities for filling. He may be an admirer of Wedgwood ware; a collector of old Worcester or old Chelsea; a purchaser of eggshell porcelain, or of Japanese lacquered ware. He may carve a little wood. He may collect carvings in ivory. He may group together photographs illustrating a particular style of sculpture. What the study may be matters little. It will depend partly on taste, and partly on opportunity. But the great point is to have a pursuit agreeable to the mind, to which it will revert with pleasure as a relaxation from bread-winning anxieties. In fact, a new education is thus commenced. But it is the education of a faculty that would otherwise be dormant, and is pursued, not only without undue labour, but with delight."——The *People's Magazine* for March includes, with many interesting stories and papers, a continuation of Mr. Beavington Atkinson's observations on the French School of Painting. Mr. Atkinson defends Claude Lorrain as against Mr. Ruskin's objections.

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## Miscellanea.

**Report on Second Autumn Exhibition of Pictures at Liverpool.**—The local Fine Arts Committee report the results of the late autumn exhibition of pictures at the Liverpool Free Library and Museum. The exhibition was opened from September 2nd to November 30th, during the day, at 1s.; and from December 2nd to December 14th, at 6d.; and in the evening from October 21st to November 30th, at 6d.; and from December 2nd to December 14th, at 3d. The number of admissions by payments at the door amounted to 22,894, besides 332 season tickets, and about 10,000 pupils of educational establishments admitted gratuitously. The number of works exhibited consisted of 430 oil colours, 501 water colours, twenty-nine pieces of sculpture and other works of art, forming a total of 960. Of these, 898 were for sale, and 242 were sold for sums amounting to 6,214*l.* 4s. 6d., of which pictures to the extent of 2,149*l.* 17s. were purchased by members of the Town Council, exclusive of 600*l.* expended by the Corporation in pictures for the permanent gallery of art now in formation. The total receipts amounted to 1,368*l.* 8s. 3d., leaving a profit of 309*l.* 18s. 5d. The committee report that the average quality of the pictures exhibited attained a decidedly higher level than at the previous exhibition.

**Oxford Main Drainage.**—The line of outfall sewer, site for pumping station, and land for irrigation, are now determined upon. Tenders for the first contract are advertised for, and the works will be commenced with as little delay as possible. They will be carried out under the superintendence of Mr. W. H. White, engineer to the Oxford Local Board.

**Edinburgh Architectural Association.**—A meeting of this association was held in the rooms last week, Mr. John Paterson, president, in the chair. Mr. J. D. Marshall read a paper on "Art, its Compass and Limits." Mr. Marshall argued that the function of art is purely æsthetical, in so far as it is through the perception of the beautiful that it addresses sympathies already existent. It is a source of intellectual delight, and ministers to culture, and is not, in its proper and higher sense, a medium of instruction. It is also distinct from the moral perceptions; its appeal is to the æsthetical perceptions, and through them to human sympathy and feeling. The natural love we have towards what is lovely induced its use in the service of religion; but the argument for the necessarily moral bearing of the materially beautiful is weak, because it is evident that a morally good picture may be bad art, and *vice versâ*. Considerable discussion followed, in which several of the members joined. A practical paper was then read by Mr. T. B. M'Fadzen on the subject of modern building construction, in which the construction of drains, foundations, and floors was considered.

**Artists' General Benevolent Institution.**—The annual general meeting of this institution has been held at the Arundel Rooms, Old Bond-street, Mr. J. Jennings in the chair. There were present Messrs. J. E. Millais, R.A., hon. sec. of the institution; and many other well-known artists. The assistant secretary, Mr. F. W. Maynard, having read the minutes of the previous meeting, the report and balance-sheet for the past year were submitted, from which it appeared that the year 1872 was not less prosperous for the institution than any of its predecessors. The income from all sources amounted to 3,577*l.*, the greater part of which sum was subscribed at the annual dinner presided over by the Marquis of Lorne. The council had to acknowledge the receipt of some large donations, amongst which was one of 500*l.* from Mr. J. Heugh; the report further stating that 86 applicants were relieved during the year; and concluding with the announcement that the Right Hon. Sir R. P. Collier had consented to preside at the next annual dinner, which would take place at Willis's Rooms on the 10th of May, when it was hoped that a strong list of stewards would be obtained.

**Trades Guild of Learning.**—At a small preliminary meeting of skilled workmen, convened by the Rev. H. Solly, at the Working Men's Club and Institute Union Offices, it has been resolved,—

"That in the opinion of this meeting it is desirable to form a Trades Guild of Learning, with the view of promoting the delivery of lectures, and the formation of classes, to assist members of trade societies and other skilled workmen in acquiring a knowledge of history, political economy, and technical education, as well as literature, science, and art generally. That the various trade societies in the United Kingdom be invited to connect themselves with this Guild by a small annual payment which should give all their members admission to certain courses of lectures and to classes, either without payment or on reduced terms; also to libraries, reading-rooms, discussions and social meetings, where these can be provided by the Guild; and that if the requisite funds can be obtained, an agent commanding the confidence of trade societies be engaged to visit their lodge meetings, by permission, and invite their support for the foregoing objects."

It was further resolved,—

"That it is important to obtain the co-operation of the authorities of the Universities and other governing bodies at present administering such endowments."

**Opening of New Record-room at Lewes.**—The record-room, the construction of which has recently been completed, has been formally opened for the use of the town. The new record-room occupies the site of the old provision market, the dilapidated state of which had for many years been an eyesore. The plans were furnished by Mr. Card, architect, and about twelve months ago the tender of Mr. Berry, builder, was accepted. The work was at once commenced, and the building is now completed. Of the exterior little can be seen, owing to the front presented by the old market-tower, which is left almost untouched. On the ground-floor space is still left for the provision-market, should it be revived, and a broad flight of steps leads to the spacious record-room. The timbers of the roof are supported by six quoins of stone, which are at present plain, but will be decorated with carving. One has been reserved for each of the present high constables, one for the clerk to the commissioners, and another for the architect, Mr. Card. The mantelpiece has been decorated in majolica, and bears the names of the late high constables.

**Gaol Occupation.**—Mr. Tallack, the secretary to the Howard Association, draws attention to the want of proper economisation in the gaol accommodation of the country, whereby gaol establishments are kept up without necessity, and might be considerably reduced,—a work for some energetic Home Secretary to see to. The governor of Ripon gaol writes on a kindred subject to the Howard Association, namely, on the absurdity of keeping criminals for years in prison without teaching them some useful trade, so that each time they are sent out just as ignorant and useless as before, to be again shut up and kept over again at the cost of the country, instead of being made useful to themselves and able and often willing to relieve their fellow countrymen from the perpetual burden of providing for them. It is wonderful with how much absurdity and how little sense a country may be governed in the midst of all the Parliamentary palaver that is perpetually going on.

**Serious Kitchen Boiler Explosion.**—An explosion which has done damage to property and injured two servants, has taken place at Quarry-hill, Accrington. The boiler was a small one, situated in the washhouse, and was used to supply hot-water pipes to a small conservatory above the washhouse. The fire had been out a few days, and the water-pipes became frozen. A brick wall was blown entirely down and across the place, and several persons knocked down, two sustaining severe cuts and shock to the nervous system. The door of the washhouse was blown off, the windows were blown out, frames and altogether, and one of the door-jambs partially dislodged. A passage communicates from the washhouse to a cellar, and the concussion was so great as to break several panes out of a window thirty yards distant. Several stones, &c., were sent through the ceiling into the room above.

**Freemantle Church Spire.**—A meeting of the seatholders in Freemantle Church was convened by the rector to consider the completion of the church spire. The rector said that Mr. Bassett, entirely unsolicited, had promised 100*l.* towards the object, and he hoped they would be enabled to begin this work unencumbered. The cost of the spire, according to the estimate of the architect (Mr. White), would be 850*l.*, and if, afterwards, a peal of six bells were added, it would be about 600*l.* more. Mr. Bassett called attention to the fact that there was no peal of bells nearer than Southampton on the one side, and Eling on the other, and said a peal in that district was much to be desired. Mr. Bassett proposed that a committee be formed, with power to add to their number, to take the necessary steps, which was carried unanimously. The rector was appointed chairman of the committee.

**New Catholic and Apostolic Church at Birkenhead.**—This new church is erected upon a site at the junction of Park-roads South and East, and forms a prominent feature in the locality. The tower, with slated spire, which rises to the height of 75 ft., is brought forward to the edge of the site, and is detached with an open bell-stage. The building is constructed wholly of brick. The style is that of the first half of the thirteenth century. The interior, which is also lined with brick, is lofty, and the chancel is unusually large. The roof of the chancel is broken into panels, and ceiled with pitch-pine, to give a distinctive treatment from the nave, which is open-timbered, and plastered between the spars. The chancel fittings are of pitch-pine, the nave being seated with rush-bottomed chairs, and will accommodate about 250. The cost of the edifice complete, without land, will be about 1,300*l.* The contract has been carried out by Mr. W. H. Forde, of Birkenhead, builder; Mr. David Walker, Liverpool, being the architect.

**Venetian Blinds of Coloured Glass.**—A good idea has been put into form in an invention patented by Mr. Peattie, of Rankeillor-street, Edinburgh. It is simply the substitution, with several little improvements, of coloured and ground glass instead of wood in the ordinary Venetian long and short blinds for windows. The glass is bound round with brass, to preserve it; and heavy blinds are simply wound up and down with something like a clock-key. The play of colours, it is easy to see, may thus be managed so as to give beautiful effects. Outside at night and inside by day windows will look as if they were illuminated; and a city seen from the streets, of an evening, under such circumstances, would have quite a gay and novel effect.

**Southwark and City Subway.**—"A Description of the Southwark and City Double Line of Subway or Tunnel, showing the important effect it will have in relieving the Traffic of London Bridge; by P. W. Barlow, C.E., &c.," has been printed for circulation. The object of the promoters, who have already obtained an Act of Parliament and agreed for the principal part of the land required, is to construct a double line of tunnel from St. George's Church, in the borough, and across the Thames, in a line with London Bridge, to Arthur-street, City, close to King William-street and the bridge approaches. Trains will be run every five minutes by rope traction, at a charge of one halfpenny second class, with lifts at a similar charge at each end. The estimated cost is 130,000*l.*, or 100,000*l.* for a single line. A return of nearly 17 per cent. is calculated on.

**South Kensington Museum.**—The Marquis of Ripon, K.G., presided at a recent meeting of officers employed at the South Kensington Museum, to inaugurate among them the establishment of various provident institutions in connexion with the Post-office. The general plan was explained by Mr. Bartley, hon. secretary of the Provident Knowledge Society, after which his Lordship,—who stated that, as he took great interest in such matters, he had much pleasure in presiding in his private capacity as a friend to the movement,—dwelt on the excellent arrangements provided by Parliament to stimulate thrift, which are administered by the Post-office, and particularly on the importance of commencing to make provision for the future when young, and of continuing it regularly. A collector of savings under the Post-office regulations is to be appointed, and a branch of the Instalment Club and Middlesex Penny Bank has been opened.

**A New City Thoroughfare.**—A communication has been opened between Charterhouse-street and Saffron-hill, which latter thoroughfare had been rendered a *cul de sac* by the Holborn Valley Improvement Works and the formation of Charterhouse-street; it consists of a flight of steps 20 ft. in width, between the level of Charterhouse-street and that of Saffron-hill. This will give convenient access to the valuable property belonging to the corporation which lies between Saffron-hill and the property in Ely-place, and will also benefit the property on Saffron-hill. The works are, in fact, part of the large scheme of improvements carried out by the corporation in this neighbourhood under the Holborn Valley Improvement Act, and of which Mr. Haywood is the engineer, and Messrs. Hill, Keddell, & Waldram have been for the most part contractors.—*City Press.*]

**The Proposed Harbour at Dungeness.**—The Bills for this harbour are now before Parliament, and will, it is to be hoped, receive careful attention. A correspondent rightly says,—It is now a good roadstead, formed by nature; why not try and improve nature by making a breakwater, leaving an opening at the point? Ships could then lie in safety from the point to Hythe. Then there is another important matter. The material for doing this is on the spot,—hundreds of acres of shingle which could be made into blocks. Ships of all sizes, and at any time of tide, could ride here in safety. It would be a great boon to the Royal Navy, as well as to the Mercantile Marine, and to the new Channel traffic, being right opposite Boulogne, only twenty-four miles across.

**Steam Boiler Explosion.**—A shocking catastrophe has occurred at Hartishead, according to the *Halifax Guardian*, in the bursting of a boiler that had neither safety-valve, steam-gauge, nor anything to indicate the pressure of steam! There was a severe frost on the previous night, causing the feed-pipe, return-pipe, and steam-pipe to be frozen. The consequence was that, when the boiler fire was lighted, there was no vent, and an explosion ensued, causing the almost instant death of a son of the proprietor of the works, and injury to two others, the wonder being that the disaster was not more fatal. It transpired at the inquest that there are a considerable number of boilers worked on a similar "principle" of neglect, and hence the jury in their verdict gave a seasonable piece of advice on the subject.

**Royal Academy of Music.**—Arrangements are on foot with a view to the removal of the Academy from Hanover-square to premises in the Royal Albert Hall.

**An Eleanor Cross for Halifax.**—A cross is shortly to be erected in the recreation-ground at Akroydon, at the sole expense of Col. Akroyd, M.P., the object being solely that of building a pleasing object with the hope of raising public taste in Halifax. The cross for Akroydon is designed by Mr. S. Barber, of this town, the details being suggested from the crosses at Northampton and Geddington. It will be in four stages, hexagonal in form, 50 ft. in height, standing upon a base of eight steps, and surmounted by a low stone wall with wrought-iron railings. One niche in the second stage will be occupied by the figure of her Majesty the Queen in coronation robes, to be carved by Mr. J. Birnie Philip, of London. The work is to be commenced at an early date.

**Hotel de Ville, Paris.**—At this moment upwards of sixty plans for the reconstruction of the Hôtel de Ville are on exhibition at the Palais d'Industrie. According to the terms of the competition, the architects were to preserve as much as possible the original façade of Boccadore, which formed the great beauty of the building. Out of the whole number, however, only fourteen have sufficiently preserved the façade to be entitled to consideration. The popular choice seems to have awarded the palm to M. Magne, the architect of the Vaudeville. Those by M. Ballu, M. Crepinet, M. Bénard, M. Escalier, M. Vaudremer, and others, are worthy of examination.

**The Flooring of Worcester Cathedral.**—A correspondent of the local *Herald* says, "Now that the generous gift of Lord Dudley to our cathedral, of a costly paving, is occupying the thoughts of many . . . . permit me to ask whether it would be possible to adopt for the purpose a flooring of wood? I contend that many advantages would ensue from the use of wood. A pattern formed in oak and other woods of various colours would have a rich and handsome effect. The chief advantage in my plan would be *warmth*. We know how difficult a thing it is to get heat enough to counteract the chill engendered by such a large assemblage of stone. Another advantage would be *sound*. The effect of music is highly increased by wood."

**Society of Engineers.**—At a meeting of the Society held on Monday evening last, Mr. Jabez Church, president, in the chair, Mr. W. H. Fox read a paper "On Continuous Railway Brakes." The author considered generally the conditions which a continuous brake should fulfil, and gave the results of his investigations as to the retarding force required to stop a train within a given distance. The author stated that the electric brake, although at present in a somewhat experimental stage, nevertheless complied with most of the conditions he had named. It was, however, being further developed, and by the light of his present experience, he considered it would ultimately prove a success.

**Improvement at Leadenhall Market.**—At a meeting of the Court of Common Council, at Guildhall, last week, the Lord Mayor presiding, Mr. Rudkin, the chairman of the Markets Committee, presented a report from the committee, submitting plans and a model for the construction of a poultry-market on the site of Leadenhall meat-market, at the estimated cost of 25,000*l.* The project was vigorously canvassed by various members of the Court, and ultimately the motion of Mr. Rudkin was negatived by a majority of five, and it was referred back to the Markets Committee to reconsider the whole question, particularly as to the value of the Corporation property in Leadenhall Market.

**Defying a Corporation.**—Some time ago the officials of the London and North-Western Railway Company submitted to the General Purposes Committee of the Preston Local Board plans of stables proposed to be erected at the bottom of Charles-street in that town. As they were not in conformity with the requirements of the bye-laws of the borough, the plans were at once rejected. Notwithstanding this, the stables have been erected upon the site named, and according to the very plans rejected by the committee. The town clerk has received instructions to proceed against the company in such a manner as he may think most expedient.

**Generous.**—Professor Tyndall has appropriated the profits of his lectures in the United States to the establishment of a fund to assist the scientific studies of young Americans in Europe.